

# SEQUENCE LISTING

<110> Armour, Christopher D  
 Castle, John C  
 Garrett-Engle, Phillip W  
 Kan, Zhengyan  
 Loerch, Patrick M  
 Tsinoremas, Nicholas F

<120> Novel Isoforms of Centromere Protein E (CENPE)

<130> RS0210Y

<150> US 60/464,905  
 <151> 2003-04-23

<150> US 60/510,701  
 <151> 2003-10-10

<160> 25

<170> PatentIn version 3.2

<210> 1  
 <211> 40  
 <212> DNA  
 <213> Homo sapiens

<400> 1  
 aagatgaatt acagaaaaag atccaagaac ttcagaaaaa 40

<210> 2  
 <211> 40  
 <212> DNA  
 <213> Homo sapiens

<400> 2  
 taagggaat gatagctaga gaccgacaga accaccaagt 40

<210> 3  
 <211> 40  
 <212> DNA  
 <213> Homo sapiens

<400> 3  
 aagatgaatt acagaaaaag gaccgacaga accaccaagt 40

<210> 4  
 <211> 40  
 <212> DNA  
 <213> Homo sapiens

<400> 4  
 aaactaaaaa agatcaagag aatgaactca gttcaaaagt 40

<210> 5  
 <211> 40  
 <212> DNA  
 <213> Homo sapiens

<400> 5  
 aaactaaaa agatcaagag gaaagcattg aagacccaaa 40

<210> 6  
 <211> 7704  
 <212> DNA  
 <213> Homo sapiens

<400> 6  
 atggcggagg aaggagccgt ggccgtctgc gtgcgagtgc ggccgctgaa cagcagagaa 60  
 gaatcacttg gagaaactgc ccaagtttac tggaaaactg acaataatgt catttatcaa 120  
 gttgatggaa gtaaactcct caattttgat cgtgtctttc atggtaatga aactaccaa 180  
 aatgtgtatg aagaaatagc agcaccaatc atcgattctg ccatacaagg ctacaatggt 240  
 actatatttg cctatggaca gactgcttca ggaaaaacat ataccatgat gggttcagaa 300  
 gatcatttgg gagttatacc cagggcaatt catgacattt tccaaaaaat taagaagttt 360  
 cctgataggg aatttctctt acgtgtatct tacatggaaa tatacaatga aaccattaca 420  
 gatttactct gtggcactca aaaaatgaaa cctttaatta ttcgagaaga tgtcaatagg 480  
 aatgtgtatg ttgctgatct cacagaagaa gttgtatata catcagaaat ggctttgaaa 540  
 tggattacaa agggagaaaa gagcaggcat tatggagaaa caaaaatgaa tcaaagaagc 600  
 agtcgttctc ataccatctt taggatgatt ttggaaagca gagagaaggg tgaaccttct 660  
 aattgtgaag gatctgttaa ggtatcccat ttgaatttgg ttgatcttgc aggcagtga 720  
 agagctgctc aaacaggcgc tgcagggtgt cggtcaagg aaggctgtaa tataaatcga 780  
 agcttattta ttttgggaca agtgatcaag aaacttagtg atggacaagt tggtggtttc 840  
 ataaattatc gagatagcaa gttaacacga attctccaga attccttggg aggaaatgca 900  
 aagacacgta ttatctgcac aattactcca gtatcttttg atgaaacact tactgctctc 960  
 cagtttgcca gtactgctaa atatatgaag aatactcctt atgttaatga ggtatcaact 1020  
 gatgaagctc tcctgaaaag gtatagaaaa gaaataatgg atcttaaaaa acaattagag 1080  
 gaggtttctt tagagacgcg ggctcaggca atggaaaaag accaattggc ccaacttttg 1140  
 gaagaaaaag atttgcttca gaaagtacag aatgagaaaa ttgaaaactt aacacggatg 1200  
 ctggtgacct cttcttccct cacgttgcaa caggaattaa aggctaaaag aaaacgaaga 1260

gttacttgggt gccttggcaa aattaacaaa atgaagaact caaactatgc agatcaattt	1320
aatataccaa caaatataac aacaaaaaca cataagcttt ctataaattt attacgagaa	1380
attgatgaat ctgtctgttc agagtctgat gttttcagta acactcttga tacattaagt	1440
gagatagaat ggaatccagc aacaaagcta ctaaatacagg agaataataga aagtgaagttg	1500
aactcacttc gtgctgacta tgataatctg gtattagact atgaacaact acgaacagaa	1560
aaagaagaaa tggaattgaa attaaaagaa aagaatgatt tggatgaatt tgaggctcta	1620
gaaagaaaaa ctaaaaaaga tcaagagatg caactaattc atgaaatttc gaacttaaag	1680
aatttagtta agcatcgaga agtatataat caagatcttg agaatgaact cagttcaaaa	1740
gtagagctgc ttagagaaaa ggaagaccag attaagaagc tacaggaata catagactct	1800
caaaagctag aaaatataaa aatggacttg tcatactcat tggaaagcat tgaagacca	1860
aaacaaatga agcagactct gtttgatgct gaaactgtag cccttgatgc caagagagaa	1920
tcagcctttc ttagaagtga aaatctggag ttgaaggaga aaatgaaaga acttgcaact	1980
acatacaagc aaatggaaaa tgatattcag ttatatcaaa gccaatgga ggcaaaaaag	2040
aaaatgcaag ttgatctgga gaaagaatta caatctgctt ttaatgagat aacaaaactc	2100
acctccctta tagatggcaa agttccaaaa gatttgctct gtaatttgga attggaagga	2160
aagattactg atcttcagaa agaactaaat aaagaagttg aagaaaatga agctttgcgg	2220
gaagaagtca ttttgctttc agaattgaaa tctttacctt ctgaagtaga aaggctgagg	2280
aaagagatac aagacaaatc tgaagagctc catataataa catcagaaaa agataaattg	2340
ttttctgaag tagttcataa ggagagtaga gttcaagggt tacttgaaga aattgggaaa	2400
acaaaagatg acctagcaac tacacagtcg aattataaaa gcactgatca agaattccaa	2460
aatttcaaaa cccttcatat ggactttgag caaaagtata agatggctct tgaggagaat	2520
gagagaatga atcaggaaat agttaatctc tctaaagaag cccaaaaatt tgattcgagt	2580
ttgggtgctt tgaagaccga gctttcttac aagaccaag aacttcagga gaaaacacgt	2640
gaggttcaag aaagactaaa tgagatggaa cagctgaagg aacaattaga aaatagagat	2700
tctccgctgc aaactgtaga aaggagagaa acactgatta ctgagaaact gcagcaaact	2760
ttagaagaag taaaaacttt aactcaagaa aaagatgatc taaaacaact ccaagaaagc	2820
ttgcaaattg agagggacca actcaaaagt gatattcacg atactgttaa catgaatata	2880
gataactcaag aacaattacg aaatgctctt gagtctctga aacaacatca agaaacaatt	2940
aatacactaa aatcgaaaat ttctgaggaa gtttcagga atttgcatat ggaggaaaat	3000
acaggagaaa ctaaagatga atttcagcaa aagatggttg gcatagataa aaaacaggat	3060

ttggaagcta	aaaataccca	aacactaact	gcagatgtta	aggataatga	gataattgag	3120
caacaaagga	agatatTTTtC	TTtaatacag	gagaaaaatg	aactccaaca	aatgttagag	3180
agtgttatag	cagaaaagga	acaattgaag	actgacctaa	aggaaaatat	tgaaatgacc	3240
attgaaaacc	aggaagaatt	aagacttctt	ggggatgaac	ttaaaaagca	acaagagata	3300
gttgcacaaag	aaaagaacca	tgccataaag	aaagaaggag	agcttttctag	gacctgtgac	3360
agactggcag	aagttgaaga	aaaactaaag	gaaaagagcc	agcaactcca	agaaaaacag	3420
caacaacttc	ttaatgtaca	agaagagatg	agtgagatgc	agaaaaagat	taatgaaata	3480
gagaatttaa	agaatgaatt	aaagaacaaa	gaattgacat	tggaacatat	ggaaacagag	3540
aggcttgagt	tggctcagaa	acttaatgaa	aattatgagg	aagtgaaatc	tataacccaa	3600
gaaagaaaag	ttctaaagga	attacagaag	tcatttgaaa	cagagagaga	ccaccttaga	3660
ggatatataa	gagaaattga	agctacaggc	ctacaaacca	aagaagaact	aaaaattgct	3720
catattcacc	taaaagaaca	ccaagaaact	attgatgaac	taagaagaag	cgtatctgag	3780
aagacagctc	aaataataaa	tactcaggac	ttagaaaaat	cccataccaa	attacaagaa	3840
gagatcccag	tgcttcatga	ggaacaagag	ttactgcta	atgtgaaaaa	agtcagtgag	3900
actcaggaaa	caatgaatga	actggagtta	ttaacagaac	agtcacacac	caaggactca	3960
acaacactgg	caagaataga	aatggaaagg	ctcagggttga	atgaaaaatt	tcaagaaagt	4020
caggaagaga	taaaatctct	aaccaaggaa	agagacaacc	ttaaaacgat	aaaagaagcc	4080
cttgaagtta	aacatgacca	gctgaaagaa	catattagag	aaactttggc	taaaatccag	4140
gagtctcaaa	gcaaacaaga	acagtcctta	aatatgaaag	aaaaagacaa	tgaaactacc	4200
aaaatcgtga	gtgagatgga	gcaattcaaa	cccaaagatt	cagcactact	aaggatagaa	4260
atagaaatgc	tcggattgtc	caaaagactt	caagaaagtc	atgatgaaat	gaaatctgta	4320
gctaaggaga	aagatgacct	acagaggctg	caagaagttc	ttcaatctga	aagtgaccag	4380
ctcaaagaaa	acataaaaaga	aattgtagct	aaacacctgg	aaactgaaga	ggaacttaaa	4440
gttgctcatt	gttgcttgaa	agaacaagag	gaaactatta	atgagttaag	agtgaatctt	4500
tcagagaagg	aaactgaaat	atcaaccatt	caaaagcagt	tagaagcaat	caatgataaa	4560
ttacagaaca	agatccaaga	gatttatgag	aaagaggaac	aacttaatat	aaaacaaatt	4620
agtgagggttc	aggaaaacgt	gaatgaactg	aaacaattca	aggagcatcg	caaagccaag	4680
gattcagcac	tacaaagtat	agaaagtaag	atgctcgagt	tgaccaacag	acttcaagaa	4740
agtcaagaag	aaatacaaat	tatgattaag	gaaaaagagg	aatgaaaag	agtacaggag	4800

gcccttcaga tagagagaga ccaactgaaa gaaaacacta aagaaattgt agctaaaatg	4860
aaagaatctc aagaaaaaga atatcagttt cttagatga cagctgtcaa tgagactcag	4920
gagaaaatgt gtgaaataga acacttgaag gagcaatttg agaccagaa gttaaacctg	4980
gaaaacatag aaacggagaa tataaggttg actcagatac tacatgaaaa ccttgaagaa	5040
atgagatctg taacaaaaga aagagatgac cttaggagtg tggaggagac tctcaaagta	5100
gagagagacc agctcaagga aaaccttaga gaaactataa ctagagacct agaaaaacaa	5160
gaggagctaa aaattgttca catgcatctg aaggagcacc aagaaactat tgataaacta	5220
agagggattg tttcagagaa aacaaatgaa atatcaaata tgcaaaagga cttagaacac	5280
tcaaattgatg ccttaaaagc acaggatctg aaaatacaag aggaactaag aattgctcac	5340
atgcatctga aagagcagca ggaaactatt gacaaactca gaggaattgt ttctgagaag	5400
acagataaac tatcaaatat gcaaaaagat ttagaaaatt caaatgctaa attacaagaa	5460
aagattcaag aacttaaggc aaatgaacat caacttatta cgttaaaaaa agatgtcaat	5520
gagacacaga aaaaagtgtc tgaaatggag caactaaaga aacaaataaa agaccaaagc	5580
ttaactctga gttaaattaga aatagagaat ttaaatttgg ctcaagaact tcatgaaaac	5640
cttgaagaaa tgaaatctgt aatgaaagaa agagataatc taagaagagt agaggagaca	5700
ctcaaactgg agagagacca actcaaggaa agcctgcaag aaaccaaagc tagagatctg	5760
gaaatacaac aggaactaaa aactgctcgt atgctatcaa aagaacacaa agaaactggt	5820
gataaactta gagaaaaaat ttcaaaaaag acaattcaaa tttcagacat tcaaaaggat	5880
ttagataaat caaaagatga attacagaaa aaggaccgac agaaccacca agtaaaacct	5940
gaaaaaagggt tactaagtga tggacaacag caccttatgg aaagcctgag agaaaagtgc	6000
tctagaataa aagagctttt gaagagatac tcagagatgg atgatcatta tgagtgcctg	6060
aatagattgt ctcttgactt ggagaaggaa attgaattcc acagaatcat gaagaaactg	6120
aagtatgtgt taagctatgt tacaaaaata aaagaagaac aacatgaatg catcaataaa	6180
tttgaaatgg atttttattga tgaagtggaa aagcaaaagg aattgctaataaaaataacag	6240
cacottcaac aagattgtga tgtaccatcc agagaattaa gggatctcaa attgaaccag	6300
aatatggatc tacatattga ggaaattctc aaagatttct cagaaagtga gttccctagc	6360
ataaagactg aatttcaaca agtactaagt aataggaaag aaatgacaca gtttttggaa	6420
gagtggttaa atactcgttt tgatatagaa aagcttaaaa atggcatcca gaaagaaaat	6480
gataggatgt gtcaagtga taacttcttt aataacagaa taattgccat aatgaatgaa	6540

tcaacagagt ttgaggaaag aagtgtctacc atatccaaag agtgggaaca ggacctgaaa	6600
tcactgaaag agaaaaatga aaaactatTTT aaaaactacc aaacattgaa gacttccttg	6660
gcatctggtg cccaggTTaa tcttaccaca caagacaata agaatcctca tgttacatca	6720
agagctacac agttaaccac agagaaaatt cgagagctgg aaaattcact gcatgaagct	6780
aaagaaagtg ctatgcataa ggaaagcaag attataaaga tgcagaaaga acttgaggtg	6840
actaatgaca taatagcaaa acttcaagcc aaagtTcatg aatcaaataa atgccttgaa	6900
aaaacaaaag agacaattca agtacttcag gacaaagttg ctttaggagc taagccatat	6960
aaagaagaaa ttgaagatct caaaatgaag cttgtgaaaa tagacctaga gaaaatgaaa	7020
aatgccaaag aatttgaaaa ggaaatcagt gctacaaaag ccaactgtaga atatcaaaag	7080
gaagttataa ggctattgag agaaaatctc agaagaagtc aacaggccca agatacctca	7140
gtgatatcag aacatactga tcttcagcct tcaaataaac ccttaacttg tggaggtggc	7200
agcggcattg tacaaaacac aaaagctctt atTTTgaaaa gtgaacatat aaggctagaa	7260
aaagaaatTT ctaagttaaa gcagcaaaat gaacagctaa taaaacaaaa gaatgaattg	7320
ttaagcaata atcagcatct ttccaatgag gtcaaaactt ggaaggaaag aacccttaaa	7380
agagaggctc acaaacaagt aacttgTgag aattctccaa agtctcctaa agtgactgga	7440
acagcttcta aaaagaaaca aattacaccc tctcaatgca aggaacggaa tttacaagat	7500
cctgtgccaa aggaatcacc aaaatctTgt ttttttgata gccgatcaaa gtctttacca	7560
tcacctcatc cagttcgcta ttttgataac tcaagtttag gcctttgtcc agaggtgcaa	7620
aatgcaggag cagagagtgt ggattctcag ccaggtcctt ggcacgcctc ctcaggcaag	7680
gatgtgcctg agtgcaaaac tcag	7704

<210> 7  
 <211> 2568  
 <212> PRT  
 <213> Homo sapiens

<400> 7

Met	Ala	Glu	Glu	Gly	Ala	Val	Ala	Val	Cys	Val	Arg	Val	Arg	Pro	Leu
1				5					10					15	

Asn	Ser	Arg	Glu	Glu	Ser	Leu	Gly	Glu	Thr	Ala	Gln	Val	Tyr	Trp	Lys
			20					25					30		

Thr	Asp	Asn	Asn	Val	Ile	Tyr	Gln	Val	Asp	Gly	Ser	Lys	Ser	Phe	Asn
		35					40					45			

Phe Asp Arg Val Phe His Gly Asn Glu Thr Thr Lys Asn Val Tyr Glu  
 50 55 60

Glu Ile Ala Ala Pro Ile Ile Asp Ser Ala Ile Gln Gly Tyr Asn Gly  
 65 70 75 80

Thr Ile Phe Ala Tyr Gly Gln Thr Ala Ser Gly Lys Thr Tyr Thr Met  
 85 90 95

Met Gly Ser Glu Asp His Leu Gly Val Ile Pro Arg Ala Ile His Asp  
 100 105 110

Ile Phe Gln Lys Ile Lys Lys Phe Pro Asp Arg Glu Phe Leu Leu Arg  
 115 120 125

Val Ser Tyr Met Glu Ile Tyr Asn Glu Thr Ile Thr Asp Leu Leu Cys  
 130 135 140

Gly Thr Gln Lys Met Lys Pro Leu Ile Ile Arg Glu Asp Val Asn Arg  
 145 150 155 160

Asn Val Tyr Val Ala Asp Leu Thr Glu Glu Val Val Tyr Thr Ser Glu  
 165 170 175

Met Ala Leu Lys Trp Ile Thr Lys Gly Glu Lys Ser Arg His Tyr Gly  
 180 185 190

Glu Thr Lys Met Asn Gln Arg Ser Ser Arg Ser His Thr Ile Phe Arg  
 195 200 205

Met Ile Leu Glu Ser Arg Glu Lys Gly Glu Pro Ser Asn Cys Glu Gly  
 210 215 220

Ser Val Lys Val Ser His Leu Asn Leu Val Asp Leu Ala Gly Ser Glu  
 225 230 235 240

Arg Ala Ala Gln Thr Gly Ala Ala Gly Val Arg Leu Lys Glu Gly Cys  
 245 250 255

Asn Ile Asn Arg Ser Leu Phe Ile Leu Gly Gln Val Ile Lys Lys Leu  
 260 265 270

Ser Asp Gly Gln Val Gly Gly Phe Ile Asn Tyr Arg Asp Ser Lys Leu  
 275 280 285

Thr Arg Ile Leu Gln Asn Ser Leu Gly Gly Asn Ala Lys Thr Arg Ile  
 290 295 300

Ile Cys Thr Ile Thr Pro Val Ser Phe Asp Glu Thr Leu Thr Ala Leu  
 305 310 315 320

Gln Phe Ala Ser Thr Ala Lys Tyr Met Lys Asn Thr Pro Tyr Val Asn  
 325 330 335

Glu Val Ser Thr Asp Glu Ala Leu Leu Lys Arg Tyr Arg Lys Glu Ile  
 340 345 350

Met Asp Leu Lys Lys Gln Leu Glu Glu Val Ser Leu Glu Thr Arg Ala  
 355 360 365

Gln Ala Met Glu Lys Asp Gln Leu Ala Gln Leu Leu Glu Glu Lys Asp  
 370 375 380

Leu Leu Gln Lys Val Gln Asn Glu Lys Ile Glu Asn Leu Thr Arg Met  
 385 390 395 400

Leu Val Thr Ser Ser Ser Leu Thr Leu Gln Gln Glu Leu Lys Ala Lys  
 405 410 415

Arg Lys Arg Arg Val Thr Trp Cys Leu Gly Lys Ile Asn Lys Met Lys  
 420 425 430

Asn Ser Asn Tyr Ala Asp Gln Phe Asn Ile Pro Thr Asn Ile Thr Thr  
 435 440 445

Lys Thr His Lys Leu Ser Ile Asn Leu Leu Arg Glu Ile Asp Glu Ser  
 450 455 460

Val Cys Ser Glu Ser Asp Val Phe Ser Asn Thr Leu Asp Thr Leu Ser  
 465 470 475 480

Glu Ile Glu Trp Asn Pro Ala Thr Lys Leu Leu Asn Gln Glu Asn Ile  
 485 490 495

Glu Ser Glu Leu Asn Ser Leu Arg Ala Asp Tyr Asp Asn Leu Val Leu  
 500 505 510



Asp Tyr Glu Gln Leu Arg Thr Glu Lys Glu Glu Met Glu Leu Lys Leu  
515 520 525

Lys Glu Lys Asn Asp Leu Asp Glu Phe Glu Ala Leu Glu Arg Lys Thr  
530 535 540

Lys Lys Asp Gln Glu Met Gln Leu Ile His Glu Ile Ser Asn Leu Lys  
545 550 555 560

Asn Leu Val Lys His Arg Glu Val Tyr Asn Gln Asp Leu Glu Asn Glu  
565 570 575

Leu Ser Ser Lys Val Glu Leu Leu Arg Glu Lys Glu Asp Gln Ile Lys  
580 585 590

Lys Leu Gln Glu Tyr Ile Asp Ser Gln Lys Leu Glu Asn Ile Lys Met  
595 600 605

Asp Leu Ser Tyr Ser Leu Glu Ser Ile Glu Asp Pro Lys Gln Met Lys  
610 615 620

Gln Thr Leu Phe Asp Ala Glu Thr Val Ala Leu Asp Ala Lys Arg Glu  
625 630 635 640

Ser Ala Phe Leu Arg Ser Glu Asn Leu Glu Leu Lys Glu Lys Met Lys  
645 650 655

Glu Leu Ala Thr Thr Tyr Lys Gln Met Glu Asn Asp Ile Gln Leu Tyr  
660 665 670

Gln Ser Gln Leu Glu Ala Lys Lys Lys Met Gln Val Asp Leu Glu Lys  
675 680 685

Glu Leu Gln Ser Ala Phe Asn Glu Ile Thr Lys Leu Thr Ser Leu Ile  
690 695 700

Asp Gly Lys Val Pro Lys Asp Leu Leu Cys Asn Leu Glu Leu Glu Gly  
705 710 715 720

Lys Ile Thr Asp Leu Gln Lys Glu Leu Asn Lys Glu Val Glu Glu Asn  
725 730 735

Glu Ala Leu Arg Glu Glu Val Ile Leu Leu Ser Glu Leu Lys Ser Leu  
740 745 750

Pro Ser Glu Val Glu Arg Leu Arg Lys Glu Ile Gln Asp Lys Ser Glu  
755 760 765

Glu Leu His Ile Ile Thr Ser Glu Lys Asp Lys Leu Phe Ser Glu Val  
770 775 780

Val His Lys Glu Ser Arg Val Gln Gly Leu Leu Glu Glu Ile Gly Lys  
785 790 795 800

Thr Lys Asp Asp Leu Ala Thr Thr Gln Ser Asn Tyr Lys Ser Thr Asp  
805 810 815

Gln Glu Phe Gln Asn Phe Lys Thr Leu His Met Asp Phe Glu Gln Lys  
820 825 830

Tyr Lys Met Val Leu Glu Glu Asn Glu Arg Met Asn Gln Glu Ile Val  
835 840 845

Asn Leu Ser Lys Glu Ala Gln Lys Phe Asp Ser Ser Leu Gly Ala Leu  
850 855 860

Lys Thr Glu Leu Ser Tyr Lys Thr Gln Glu Leu Gln Glu Lys Thr Arg  
865 870 875 880

Glu Val Gln Glu Arg Leu Asn Glu Met Glu Gln Leu Lys Glu Gln Leu  
885 890 895

Glu Asn Arg Asp Ser Pro Leu Gln Thr Val Glu Arg Glu Lys Thr Leu  
900 905 910

Ile Thr Glu Lys Leu Gln Gln Thr Leu Glu Glu Val Lys Thr Leu Thr  
915 920 925

Gln Glu Lys Asp Asp Leu Lys Gln Leu Gln Glu Ser Leu Gln Ile Glu  
930 935 940

Arg Asp Gln Leu Lys Ser Asp Ile His Asp Thr Val Asn Met Asn Ile  
945 950 955 960

Asp Thr Gln Glu Gln Leu Arg Asn Ala Leu Glu Ser Leu Lys Gln His  
965 970 975

Gln Glu Thr Ile Asn Thr Leu Lys Ser Lys Ile Ser Glu Glu Val Ser  
 980 985 990

Arg Asn Leu His Met Glu Glu Asn Thr Gly Glu Thr Lys Asp Glu Phe  
 995 1000 1005

Gln Gln Lys Met Val Gly Ile Asp Lys Lys Gln Asp Leu Glu Ala  
 1010 1015 1020

Lys Asn Thr Gln Thr Leu Thr Ala Asp Val Lys Asp Asn Glu Ile  
 1025 1030 1035

Ile Glu Gln Gln Arg Lys Ile Phe Ser Leu Ile Gln Glu Lys Asn  
 1040 1045 1050

Glu Leu Gln Gln Met Leu Glu Ser Val Ile Ala Glu Lys Glu Gln  
 1055 1060 1065

Leu Lys Thr Asp Leu Lys Glu Asn Ile Glu Met Thr Ile Glu Asn  
 1070 1075 1080

Gln Glu Glu Leu Arg Leu Leu Gly Asp Glu Leu Lys Lys Gln Gln  
 1085 1090 1095

Glu Ile Val Ala Gln Glu Lys Asn His Ala Ile Lys Lys Glu Gly  
 1100 1105 1110

Glu Leu Ser Arg Thr Cys Asp Arg Leu Ala Glu Val Glu Glu Lys  
 1115 1120 1125

Leu Lys Glu Lys Ser Gln Gln Leu Gln Glu Lys Gln Gln Gln Leu  
 1130 1135 1140

Leu Asn Val Gln Glu Glu Met Ser Glu Met Gln Lys Lys Ile Asn  
 1145 1150 1155

Glu Ile Glu Asn Leu Lys Asn Glu Leu Lys Asn Lys Glu Leu Thr  
 1160 1165 1170

Leu Glu His Met Glu Thr Glu Arg Leu Glu Leu Ala Gln Lys Leu  
 1175 1180 1185

Asn Glu Asn Tyr Glu Glu Val Lys Ser Ile Thr Lys Glu Arg Lys  
 1190 1195 1200

Val	Leu	Lys	Glu	Leu	Gln	Lys	Ser	Phe	Glu	Thr	Glu	Arg	Asp	His
1205						1210					1215			
Leu	Arg	Gly	Tyr	Ile	Arg	Glu	Ile	Glu	Ala	Thr	Gly	Leu	Gln	Thr
1220						1225					1230			
Lys	Glu	Glu	Leu	Lys	Ile	Ala	His	Ile	His	Leu	Lys	Glu	His	Gln
1235						1240					1245			
Glu	Thr	Ile	Asp	Glu	Leu	Arg	Arg	Ser	Val	Ser	Glu	Lys	Thr	Ala
1250						1255					1260			
Gln	Ile	Ile	Asn	Thr	Gln	Asp	Leu	Glu	Lys	Ser	His	Thr	Lys	Leu
1265						1270					1275			
Gln	Glu	Glu	Ile	Pro	Val	Leu	His	Glu	Glu	Gln	Glu	Leu	Leu	Pro
1280						1285					1290			
Asn	Val	Lys	Lys	Val	Ser	Glu	Thr	Gln	Glu	Thr	Met	Asn	Glu	Leu
1295						1300					1305			
Glu	Leu	Leu	Thr	Glu	Gln	Ser	Thr	Thr	Lys	Asp	Ser	Thr	Thr	Leu
1310						1315					1320			
Ala	Arg	Ile	Glu	Met	Glu	Arg	Leu	Arg	Leu	Asn	Glu	Lys	Phe	Gln
1325						1330					1335			
Glu	Ser	Gln	Glu	Glu	Ile	Lys	Ser	Leu	Thr	Lys	Glu	Arg	Asp	Asn
1340						1345					1350			
Leu	Lys	Thr	Ile	Lys	Glu	Ala	Leu	Glu	Val	Lys	His	Asp	Gln	Leu
1355						1360					1365			
Lys	Glu	His	Ile	Arg	Glu	Thr	Leu	Ala	Lys	Ile	Gln	Glu	Ser	Gln
1370						1375					1380			
Ser	Lys	Gln	Glu	Gln	Ser	Leu	Asn	Met	Lys	Glu	Lys	Asp	Asn	Glu
1385						1390					1395			
Thr	Thr	Lys	Ile	Val	Ser	Glu	Met	Glu	Gln	Phe	Lys	Pro	Lys	Asp
1400						1405					1410			

Ser	Ala	Leu	Leu	Arg	Ile	Glu	Ile	Glu	Met	Leu	Gly	Leu	Ser	Lys
1415						1420					1425			
Arg	Leu	Gln	Glu	Ser	His	Asp	Glu	Met	Lys	Ser	Val	Ala	Lys	Glu
1430						1435					1440			
Lys	Asp	Asp	Leu	Gln	Arg	Leu	Gln	Glu	Val	Leu	Gln	Ser	Glu	Ser
1445						1450					1455			
Asp	Gln	Leu	Lys	Glu	Asn	Ile	Lys	Glu	Ile	Val	Ala	Lys	His	Leu
1460						1465					1470			
Glu	Thr	Glu	Glu	Glu	Leu	Lys	Val	Ala	His	Cys	Cys	Leu	Lys	Glu
1475						1480					1485			
Gln	Glu	Glu	Thr	Ile	Asn	Glu	Leu	Arg	Val	Asn	Leu	Ser	Glu	Lys
1490						1495					1500			
Glu	Thr	Glu	Ile	Ser	Thr	Ile	Gln	Lys	Gln	Leu	Glu	Ala	Ile	Asn
1505						1510					1515			
Asp	Lys	Leu	Gln	Asn	Lys	Ile	Gln	Glu	Ile	Tyr	Glu	Lys	Glu	Glu
1520						1525					1530			
Gln	Leu	Asn	Ile	Lys	Gln	Ile	Ser	Glu	Val	Gln	Glu	Asn	Val	Asn
1535						1540					1545			
Glu	Leu	Lys	Gln	Phe	Lys	Glu	His	Arg	Lys	Ala	Lys	Asp	Ser	Ala
1550						1555					1560			
Leu	Gln	Ser	Ile	Glu	Ser	Lys	Met	Leu	Glu	Leu	Thr	Asn	Arg	Leu
1565						1570					1575			
Gln	Glu	Ser	Gln	Glu	Glu	Ile	Gln	Ile	Met	Ile	Lys	Glu	Lys	Glu
1580						1585					1590			
Glu	Met	Lys	Arg	Val	Gln	Glu	Ala	Leu	Gln	Ile	Glu	Arg	Asp	Gln
1595						1600					1605			
Leu	Lys	Glu	Asn	Thr	Lys	Glu	Ile	Val	Ala	Lys	Met	Lys	Glu	Ser
1610						1615					1620			
Gln	Glu	Lys	Glu	Tyr	Gln	Phe	Leu	Lys	Met	Thr	Ala	Val	Asn	Glu
1625						1630					1635			

Thr	Gln	Glu	Lys	Met	Cys	Glu	Ile	Glu	His	Leu	Lys	Glu	Gln	Phe
1640						1645					1650			
Glu	Thr	Gln	Lys	Leu	Asn	Leu	Glu	Asn	Ile	Glu	Thr	Glu	Asn	Ile
1655						1660					1665			
Arg	Leu	Thr	Gln	Ile	Leu	His	Glu	Asn	Leu	Glu	Glu	Met	Arg	Ser
1670						1675					1680			
Val	Thr	Lys	Glu	Arg	Asp	Asp	Leu	Arg	Ser	Val	Glu	Glu	Thr	Leu
1685						1690					1695			
Lys	Val	Glu	Arg	Asp	Gln	Leu	Lys	Glu	Asn	Leu	Arg	Glu	Thr	Ile
1700						1705					1710			
Thr	Arg	Asp	Leu	Glu	Lys	Gln	Glu	Glu	Leu	Lys	Ile	Val	His	Met
1715						1720					1725			
His	Leu	Lys	Glu	His	Gln	Glu	Thr	Ile	Asp	Lys	Leu	Arg	Gly	Ile
1730						1735					1740			
Val	Ser	Glu	Lys	Thr	Asn	Glu	Ile	Ser	Asn	Met	Gln	Lys	Asp	Leu
1745						1750					1755			
Glu	His	Ser	Asn	Asp	Ala	Leu	Lys	Ala	Gln	Asp	Leu	Lys	Ile	Gln
1760						1765					1770			
Glu	Glu	Leu	Arg	Ile	Ala	His	Met	His	Leu	Lys	Glu	Gln	Gln	Glu
1775						1780					1785			
Thr	Ile	Asp	Lys	Leu	Arg	Gly	Ile	Val	Ser	Glu	Lys	Thr	Asp	Lys
1790						1795					1800			
Leu	Ser	Asn	Met	Gln	Lys	Asp	Leu	Glu	Asn	Ser	Asn	Ala	Lys	Leu
1805						1810					1815			
Gln	Glu	Lys	Ile	Gln	Glu	Leu	Lys	Ala	Asn	Glu	His	Gln	Leu	Ile
1820						1825					1830			
Thr	Leu	Lys	Lys	Asp	Val	Asn	Glu	Thr	Gln	Lys	Lys	Val	Ser	Glu
1835						1840					1845			
Met	Glu	Gln	Leu	Lys	Lys	Gln	Ile	Lys	Asp	Gln	Ser	Leu	Thr	Leu
1850						1855					1860			

Ser	Lys	Leu	Glu	Ile	Glu	Asn	Leu	Asn	Leu	Ala	Gln	Glu	Leu	His
1865						1870					1875			
Glu	Asn	Leu	Glu	Glu	Met	Lys	Ser	Val	Met	Lys	Glu	Arg	Asp	Asn
1880						1885					1890			
Leu	Arg	Arg	Val	Glu	Glu	Thr	Leu	Lys	Leu	Glu	Arg	Asp	Gln	Leu
1895						1900					1905			
Lys	Glu	Ser	Leu	Gln	Glu	Thr	Lys	Ala	Arg	Asp	Leu	Glu	Ile	Gln
1910						1915					1920			
Gln	Glu	Leu	Lys	Thr	Ala	Arg	Met	Leu	Ser	Lys	Glu	His	Lys	Glu
1925						1930					1935			
Thr	Val	Asp	Lys	Leu	Arg	Glu	Lys	Ile	Ser	Glu	Lys	Thr	Ile	Gln
1940						1945					1950			
Ile	Ser	Asp	Ile	Gln	Lys	Asp	Leu	Asp	Lys	Ser	Lys	Asp	Glu	Leu
1955						1960					1965			
Gln	Lys	Lys	Asp	Arg	Gln	Asn	His	Gln	Val	Lys	Pro	Glu	Lys	Arg
1970						1975					1980			
Leu	Leu	Ser	Asp	Gly	Gln	Gln	His	Leu	Met	Glu	Ser	Leu	Arg	Glu
1985						1990					1995			
Lys	Cys	Ser	Arg	Ile	Lys	Glu	Leu	Leu	Lys	Arg	Tyr	Ser	Glu	Met
2000						2005					2010			
Asp	Asp	His	Tyr	Glu	Cys	Leu	Asn	Arg	Leu	Ser	Leu	Asp	Leu	Glu
2015						2020					2025			
Lys	Glu	Ile	Glu	Phe	His	Arg	Ile	Met	Lys	Lys	Leu	Lys	Tyr	Val
2030						2035					2040			
Leu	Ser	Tyr	Val	Thr	Lys	Ile	Lys	Glu	Glu	Gln	His	Glu	Cys	Ile
2045						2050					2055			
Asn	Lys	Phe	Glu	Met	Asp	Phe	Ile	Asp	Glu	Val	Glu	Lys	Gln	Lys
2060						2065					2070			

Glu	Leu	Leu	Ile	Lys	Ile	Gln	His	Leu	Gln	Gln	Asp	Cys	Asp	Val
2075						2080					2085			
Pro	Ser	Arg	Glu	Leu	Arg	Asp	Leu	Lys	Leu	Asn	Gln	Asn	Met	Asp
2090						2095					2100			
Leu	His	Ile	Glu	Glu	Ile	Leu	Lys	Asp	Phe	Ser	Glu	Ser	Glu	Phe
2105						2110					2115			
Pro	Ser	Ile	Lys	Thr	Glu	Phe	Gln	Gln	Val	Leu	Ser	Asn	Arg	Lys
2120						2125					2130			
Glu	Met	Thr	Gln	Phe	Leu	Glu	Glu	Trp	Leu	Asn	Thr	Arg	Phe	Asp
2135						2140					2145			
Ile	Glu	Lys	Leu	Lys	Asn	Gly	Ile	Gln	Lys	Glu	Asn	Asp	Arg	Ile
2150						2155					2160			
Cys	Gln	Val	Asn	Asn	Phe	Phe	Asn	Asn	Arg	Ile	Ile	Ala	Ile	Met
2165						2170					2175			
Asn	Glu	Ser	Thr	Glu	Phe	Glu	Glu	Arg	Ser	Ala	Thr	Ile	Ser	Lys
2180						2185					2190			
Glu	Trp	Glu	Gln	Asp	Leu	Lys	Ser	Leu	Lys	Glu	Lys	Asn	Glu	Lys
2195						2200					2205			
Leu	Phe	Lys	Asn	Tyr	Gln	Thr	Leu	Lys	Thr	Ser	Leu	Ala	Ser	Gly
2210						2215					2220			
Ala	Gln	Val	Asn	Pro	Thr	Thr	Gln	Asp	Asn	Lys	Asn	Pro	His	Val
2225						2230					2235			
Thr	Ser	Arg	Ala	Thr	Gln	Leu	Thr	Thr	Glu	Lys	Ile	Arg	Glu	Leu
2240						2245					2250			
Glu	Asn	Ser	Leu	His	Glu	Ala	Lys	Glu	Ser	Ala	Met	His	Lys	Glu
2255						2260					2265			
Ser	Lys	Ile	Ile	Lys	Met	Gln	Lys	Glu	Leu	Glu	Val	Thr	Asn	Asp
2270						2275					2280			
Ile	Ile	Ala	Lys	Leu	Gln	Ala	Lys	Val	His	Glu	Ser	Asn	Lys	Cys
2285						2290					2295			



- 17 -

Pro Val Arg Tyr Phe Asp Asn Ser Ser Leu Gly Leu Cys Pro Glu  
 2525 2530 2535

Val Gln Asn Ala Gly Ala Glu Ser Val Asp Ser Gln Pro Gly Pro  
 2540 2545 2550

Trp His Ala Ser Ser Gly Lys Asp Val Pro Glu Cys Lys Thr Gln  
 2555 2560 2565

<210> 8  
 <211> 7629  
 <212> DNA  
 <213> Homo sapiens

<400> 8  
 atggcggagg aaggagccgt ggccgtctgc gtgcgagtgc ggccgctgaa cagcagagaa 60  
 gaatcacttg gagaaactgc ccaagtttac tggaaaactg acaataatgt catttatcaa 120  
 gttgatggaa gtaaatacct caattttgat cgtgtctttc atggtaatga aactaccaa 180  
 aatgtgtatg aagaaatagc agcaccaatc atcgattctg ccatacaagg ctacaatggt 240  
 actatatttg cctatggaca gactgcttca ggaaaaacat ataccatgat gggttcagaa 300  
 gatcatttgg gagttatacc cagggcaatt catgacattt tccaaaaaat taagaagttt 360  
 cctgataggg aatttctctt acgtgtatct tacatggaaa tatacaatga aaccattaca 420  
 gatttactct gtggcactca aaaaatgaaa cctttaatta ttcgagaaga tgtcaatagg 480  
 aatgtgtatg ttgtgatct cacagaagaa gttgtatata catcagaaat ggctttgaaa 540  
 tggattacaa agggagaaaa gagcaggcat tatggagaaa caaaaatgaa tcaaagaagc 600  
 agtcgttctc ataccatctt taggatgatt ttggaaagca gagagaaggg tgaaccttct 660  
 aattgtgaag gatctgttaa ggtatcccat ttgaatttgg ttgatcttgc aggcagtga 720  
 agagctgctc aaacaggcgc tgcagggtgtg cggctcaagg aaggctgtaa tataaatcga 780  
 agcttatatta ttttgggaca agtgatcaag aaacttagtg atggacaagt tgggtggtttc 840  
 ataaattatc gagatagcaa gttaacacga attctccaga attccttggg aggaaatgca 900  
 aagacacgta ttatctgcac aattactcca gtatcttttg atgaaacact tactgctctc 960  
 cagtttgcca gtactgctaa atatatgaag aatactcctt atgttaatga ggtatcaact 1020  
 gatgaagctc tcctgaaaag gtatagaaaa gaaataatgg atcttaaaaa acaattagag 1080  
 gaggtttctt tagagacgcg ggctcaggca atggaaaaag accaattggc ccaacttttg 1140

gaagaaaaag atttgcttca gaaagtacag aatgagaaaa ttgaaaactt aacacggatg	1200
ctggtgacct ottttccct cacgttgcaa caggaattaa aggctaaaag aaaacgaaga	1260
gttacttggt gccttgcaa aattaacaaa atgaagaact caaactatgc agatcaattt	1320
aatataccaa caaatataac aacaaaaaca cataagcttt ctataaattt attacgagaa	1380
attgatgaat ctgtctgttc agagtctgat gttttcagta acactcttga tacattaagt	1440
gagatagaat ggaatccagc aacaaagcta ctaaatcagg agaatataga aagtgagttg	1500
aactcacttc gtgctgacta tgataatctg gtattagact atgaacaact acgaacagaa	1560
aaagaagaaa tggaattgaa attaaaagaa aagaatgatt tggatgaatt tgaggctcta	1620
gaaagaaaaa ctaaaaaaga tcaagagaat gaactcagtt caaaagtaga gctgcttaga	1680
gaaaaggaag accagattaa gaagctacag gaatacatag actctcaaaa gctagaaaat	1740
ataaaaatgg acttgtcata ctcatggaa agcattgaag acccaaaaca aatgaagcag	1800
actctgtttg atgctgaaac tgtagccctt gatgccaga gagaatcagc ctttcttaga	1860
agtgaaaatc tggagttgaa ggagaaaatg aaagaacttg caactacata caagcaaattg	1920
gaaaatgata ttcagttata tcaaagccaa ttggaggcaa aaaagaaaat gcaagttgat	1980
ctggagaaaag aattacaatc tgcttttaat gagataacaa aactcacctc ccttatagat	2040
ggcaaagttc caaaagattt gctctgtaat ttggaattgg aaggaaagat tactgatctt	2100
cagaaagaac taaataaaga agttgaagaa aatgaagctt tgcggaaga agtcattttg	2160
ctttcagaat tgaaatcttt accttctgaa gtagaaaggc tgaggaaaga gatacaagac	2220
aaatctgaag agctccatat aataacatca gaaaaagata aattgttttc tgaagtagtt	2280
cataaggaga gtagagttca aggtttactt gaagaaattg ggaaaacaaa agatgacctt	2340
gcaactacac agtcgaatta taaaagcact gatcaagaat tccaaaattt caaaaccctt	2400
catatggact ttgagcaaaa gtataagatg gtccttgagg agaatgagag aatgaatcag	2460
gaaatagtta atctctctaa agaagcccaa aaatttgatt cgagtttggg tgctttgaag	2520
accgagcttt cttacaagac ccaagaactt caggagaaaa cacgtgaggt tcaagaaaga	2580
ctaaatgaga tggaacagct gaaggaacaa ttagaaaata gagattctcc gctgcaaact	2640
gtagaaaggg agaaaacact gattactgag aaactgcagc aaactttaga agaagtaaaa	2700
actttaactc aagaaaaaga tgatctaaaa caactccaag aaagcttgca aattgagagg	2760
gaccaactca aaagtgatat tcacgatact gttaacatga atatagatac tcaagaacaa	2820
ttacgaaatg ctcttgagtc tctgaaacaa catcaagaaa caattaatac actaaaatcg	2880
aaaatttctg aggaagtttc caggaatttg catatggagg aaaatacagg agaaactaaa	2940

gatgaatttc agcaaaagat ggttggcata gataaaaaac aggatttgga agctaaaaat	3000
acccaaacac taactgcaga tgttaaggat aatgagataa ttgagcaaca aaggaagata	3060
ttttctttaa tacaggagaa aaatgaactc caacaaatgt tagagagtgt tatagcagaa	3120
aaggaacaat tgaagactga cctaaaggaa aatattgaaa tgaccattga aaaccaggaa	3180
gaattaagac ttcttgggga tgaacttaaa aagcaacaag agatagttgc acaagaaaag	3240
aaccatgcca taaagaaaga aggagagctt tctaggacct gtgacagact ggcagaagtt	3300
gaagaaaaac taaaggaaaa gagccagcaa ctccaagaaa aacagcaaca acttcttaat	3360
gtacaagaag agatgagtga gatgcagaaa aagattaatg aaatagagaa tttaaagaat	3420
gaattaaaga acaaagaatt gacattggaa catatggaaa cagagaggct tgagttggct	3480
cagaaactta atgaaaatta tgaggaagtg aaatctataa ccaagaaaag aaaagttcta	3540
aaggaattac agaagtcatt tgaacagag agagaccacc ttagaggata tataagagaa	3600
attgaagcta caggcctaca aaccaagaa gaactaaaaa ttgctcatat tcacctaaaa	3660
gaacaccaag aaactattga tgaactaaga agaagcgtat ctgagaagac agctcaaata	3720
ataaatactc aggacttaga aaaatcccat accaaattac aagaagagat cccagtgcct	3780
catgaggaac aagagttact gcctaattgtg aaaaaagtca gtgagactca ggaaacaatg	3840
aatgaactgg agttattaac agaacagtc cacaaccaagg actcaacaac actggcaaga	3900
atagaaatgg aaaggctcag gttgaatgaa aaatttcaag aaagtcagga agagataaaa	3960
tctctaacca aggaaagaga caaccttaaa acgataaaaag aagcccttga agttaaacat	4020
gaccagctga aagaacatat tagagaaact ttggctaaaa tccaggagtc tcaaagcaaa	4080
caagaacagt ccttaaatat gaaagaaaaa gacaatgaaa ctaccaaagt cgtgagtga	4140
atggagcaat tcaaacccaa agattcagca ctactaagga tagaaataga aatgctcgga	4200
ttgtccaaaa gacttcaaga aagtcatgat gaaatgaaat ctgtagctaa ggagaaagat	4260
gacctacaga ggctgcaaga agttcttcaa tctgaaagt accagctcaa agaaaacata	4320
aaagaaattg tagctaaaca cctggaaact gaagaggaac ttaaagttgc tcattgttgc	4380
ctgaaagaac aagaggaaac tattaatgag ttaagagtga atctttcaga gaaggaaact	4440
gaaatatcaa ccattcaaaa gcagttagaa gcaatcaatg ataaattaca gaacaagatc	4500
caagagattt atgagaaaga ggaacaactt aatataaaac aaattagtga ggttcaggaa	4560
aacgtgaatg aactgaaaca attcaaggag catcgcaaag ccaaggattc agcactacaa	4620
agtatagaaa gtaagatgct cgagttgacc aacagacttc aagaaagtca agaagaaata	4680

caaattatga ttaaggaaaa agaggaaatg aaaagagtac aggaggccct tcagatagag	4740
agagaccaac tgaaagaaaa cactaaagaa attgtagcta aaatgaaaga atctcaagaa	4800
aaagaatatc agttttcttaa gatgacagct gtcaatgaga ctcaggagaa aatgtgtgaa	4860
atagaacact tgaaggagca atttgagacc cagaagttaa acctggaaaa catagaaacg	4920
gagaatataa ggttgactca gatactacat gaaaaccttg aagaaatgag atctgtaaca	4980
aaagaaagag atgaccttag gagtgtggag gagactctca aagtagagag agaccagctc	5040
aaggaaaacc ttagagaaac tataactaga gacctagaaa aacaagagga gctaaaaatt	5100
gttcacatgc atctgaagga gcaccaagaa actattgata aactaagagg gattgtttca	5160
gagaaaacaa atgaaatatc aaatatgcaa aaggacttag aacctcaaa tgatgcctta	5220
aaagcacagg atctgaaaat acaagaggaa ctaagaattg ctcacatgca tctgaaagag	5280
cagcaggaaa ctattgacaa actcagagga attgtttctg agaagacaga taaactatca	5340
aatatgcaaa aagattttaga aaattcaaat gctaaattac aagaaaagat tcaagaactt	5400
aaggcaaatg aacatcaact tattacgtta aaaaaagatg tcaatgagac acagaaaaaa	5460
gtgtctgaaa tggagcaact aaagaaacaa ataaaagacc aaagcttaac tctgagtaaa	5520
ttagaaatag agaattttaa tttggctcaa gaacttcatg aaaaccttga agaaatgaaa	5580
tctgtaatga aagaaagaga taatctaaga agagtagagg agacactcaa actggagaga	5640
gaccaactca aggaaagcct gcaagaaacc aaagctagag atctggaaat acaacaggaa	5700
ctaaaaactg ctcgtagct atcaaaagaa cacaaagaaa ctgttgataa acttagagaa	5760
aaaatttcag aaaagacaat tcaaatttca gacattcaaa aggattttaga taaatcaaaa	5820
gatgaattac agaaaaagga ccgacagaac caccaagtaa aacctgaaaa aaggttacta	5880
agtgatggac aacagcacct tatggaaagc ctgagagaaa agtgctctag aataaaagag	5940
cttttgaaga gatactcaga gatggatgat cattatgagt gcttgaatag attgtctctt	6000
gacttggaga aggaaattga attccacaga atcatgaaga aactgaagta tgtgttaagc	6060
tatgttacia aaataaaaga agaacaacat gaatgcatca ataaatttga aatggatttt	6120
attgatgaag tggaaaagca aaaggaattg ctaattaaaa tacagcacct tcaacaagat	6180
tgtgatgtac catccagaga attaagggat ctcaaattga accagaatat ggatctacat	6240
attgaggaaa ttctcaaaga tttctcagaa agtgagttcc ctagcataaa gactgaattt	6300
caacaagtac taagtaatag gaaagaaatg acacagtttt tggaagagtg gttaaatact	6360
cgttttgata tagaaaagct taaaaatggc atccagaaaag aaaatgatag gatttgtcaa	6420
gtgaataact tctttaataa cagaataatt gccataatga atgaatcaac agagtttgag	6480

gaaagaagtg ctaccatata caaagagtgg gaacaggacc tgaaatcact gaaagagaaa 6540  
aatgaaaaac tatttaaaaa ctaccaaaca ttgaagactt ccttggcatc tgggtgccag 6600  
gttaatccta ccacacaaga caataagaat cctcatgtta catcaagagc tacacagtta 6660  
accacagaga aaattcgaga gctggaaaat tcaactgcatg aagctaaaga aagtgcctatg 6720  
cataaggaaa gcaagattat aaagatgcag aaagaacttg aggtgactaa tgacataata 6780  
gcaaaacttc aagccaaagt tcatgaatca aataaatgcc ttgaaaaaac aaaagagaca 6840  
attcaagtac ttcaggacaa agttgcttta ggagctaagc catataaaga agaaattgaa 6900  
gatctcaaaa tgaagcttgt gaaaatagac ctagagaaaa tgaaaaatgc caaagaatth 6960  
gaaaaggaaa tcagtgcctac aaaagccact gtagaatatc aaaaggaagt tataaggcta 7020  
ttgagagaaa atctcagaag aagtcaacag gcccaagata cctcagtgat atcagaacat 7080  
actgatcctc agccttcaaa taaaccctta acttggtggag gtggcagcgg cattgtacaa 7140  
aacacaaaag ctcttatttt gaaaagtga catataaggc tagaaaaaga aatttctaag 7200  
ttaaagcagc aaaatgaaca gctaataaaa caaagaatg aattgttaag caataatcag 7260  
catctttcca atgaggtcaa aacttggaag gaaagaacc ttaaaagaga ggctcacaaa 7320  
caagtaactt gtgagaattc tccaaagtct cctaaagtga ctggaacagc ttctaaaaag 7380  
aaacaaatta caccctctca atgcaaggaa cggaatttac aagatcctgt gccaaaggaa 7440  
tcaccaaata cttgtttttt tgatagccga tcaaagtctt taccatcacc tcatccagtt 7500  
cgctatthttg ataactcaag tttaggcctt tgtccagagg tgcaaatgc aggagcagag 7560  
agtgtggatt ctgagccagg tccttggcac gcctctcag gcaaggatgt gcctgagtgc 7620  
aaaactcag 7629

<210> 9  
<211> 2543  
<212> PRT  
<213> Homo sapiens

<400> 9

Met Ala Glu Glu Gly Ala Val Ala Val Cys Val Arg Val Arg Pro Leu  
1 5 10 15

Asn Ser Arg Glu Glu Ser Leu Gly Glu Thr Ala Gln Val Tyr Trp Lys  
20 25 30

Thr Asp Asn Asn Val Ile Tyr Gln Val Asp Gly Ser Lys Ser Phe Asn  
35 40 45

Phe Asp Arg Val Phe His Gly Asn Glu Thr Thr Lys Asn Val Tyr Glu  
50 55 60

Glu Ile Ala Ala Pro Ile Ile Asp Ser Ala Ile Gln Gly Tyr Asn Gly  
65 70 75 80

Thr Ile Phe Ala Tyr Gly Gln Thr Ala Ser Gly Lys Thr Tyr Thr Met  
85 90 95

Met Gly Ser Glu Asp His Leu Gly Val Ile Pro Arg Ala Ile His Asp  
100 105 110

Ile Phe Gln Lys Ile Lys Lys Phe Pro Asp Arg Glu Phe Leu Leu Arg  
115 120 125

Val Ser Tyr Met Glu Ile Tyr Asn Glu Thr Ile Thr Asp Leu Leu Cys  
130 135 140

Gly Thr Gln Lys Met Lys Pro Leu Ile Ile Arg Glu Asp Val Asn Arg  
145 150 155 160

Asn Val Tyr Val Ala Asp Leu Thr Glu Glu Val Val Tyr Thr Ser Glu  
165 170 175

Met Ala Leu Lys Trp Ile Thr Lys Gly Glu Lys Ser Arg His Tyr Gly  
180 185 190

Glu Thr Lys Met Asn Gln Arg Ser Ser Arg Ser His Thr Ile Phe Arg  
195 200 205

Met Ile Leu Glu Ser Arg Glu Lys Gly Glu Pro Ser Asn Cys Glu Gly  
210 215 220

Ser Val Lys Val Ser His Leu Asn Leu Val Asp Leu Ala Gly Ser Glu  
225 230 235 240

Arg Ala Ala Gln Thr Gly Ala Ala Gly Val Arg Leu Lys Glu Gly Cys  
245 250 255

Asn Ile Asn Arg Ser Leu Phe Ile Leu Gly Gln Val Ile Lys Lys Leu  
260 265 270

Ser Asp Gly Gln Val Gly Gly Phe Ile Asn Tyr Arg Asp Ser Lys Leu  
 275 280 285

Thr Arg Ile Leu Gln Asn Ser Leu Gly Gly Asn Ala Lys Thr Arg Ile  
 290 295 300

Ile Cys Thr Ile Thr Pro Val Ser Phe Asp Glu Thr Leu Thr Ala Leu  
 305 310 315 320

Gln Phe Ala Ser Thr Ala Lys Tyr Met Lys Asn Thr Pro Tyr Val Asn  
 325 330 335

Glu Val Ser Thr Asp Glu Ala Leu Leu Lys Arg Tyr Arg Lys Glu Ile  
 340 345 350

Met Asp Leu Lys Lys Gln Leu Glu Glu Val Ser Leu Glu Thr Arg Ala  
 355 360 365

Gln Ala Met Glu Lys Asp Gln Leu Ala Gln Leu Leu Glu Glu Lys Asp  
 370 375 380

Leu Leu Gln Lys Val Gln Asn Glu Lys Ile Glu Asn Leu Thr Arg Met  
 385 390 395 400

Leu Val Thr Ser Ser Ser Leu Thr Leu Gln Gln Glu Leu Lys Ala Lys  
 405 410 415

Arg Lys Arg Arg Val Thr Trp Cys Leu Gly Lys Ile Asn Lys Met Lys  
 420 425 430

Asn Ser Asn Tyr Ala Asp Gln Phe Asn Ile Pro Thr Asn Ile Thr Thr  
 435 440 445

Lys Thr His Lys Leu Ser Ile Asn Leu Leu Arg Glu Ile Asp Glu Ser  
 450 455 460

Val Cys Ser Glu Ser Asp Val Phe Ser Asn Thr Leu Asp Thr Leu Ser  
 465 470 475 480

Glu Ile Glu Trp Asn Pro Ala Thr Lys Leu Leu Asn Gln Glu Asn Ile  
 485 490 495

Glu Ser Glu Leu Asn Ser Leu Arg Ala Asp Tyr Asp Asn Leu Val Leu  
 500 505 510



Asp Tyr Glu Gln Leu Arg Thr Glu Lys Glu Glu Met Glu Leu Lys Leu  
515 520 525

Lys Glu Lys Asn Asp Leu Asp Glu Phe Glu Ala Leu Glu Arg Lys Thr  
530 535 540

Lys Lys Asp Gln Glu Asn Glu Leu Ser Ser Lys Val Glu Leu Leu Arg  
545 550 555 560

Glu Lys Glu Asp Gln Ile Lys Lys Leu Gln Glu Tyr Ile Asp Ser Gln  
565 570 575

Lys Leu Glu Asn Ile Lys Met Asp Leu Ser Tyr Ser Leu Glu Ser Ile  
580 585 590

Glu Asp Pro Lys Gln Met Lys Gln Thr Leu Phe Asp Ala Glu Thr Val  
595 600 605

Ala Leu Asp Ala Lys Arg Glu Ser Ala Phe Leu Arg Ser Glu Asn Leu  
610 615 620

Glu Leu Lys Glu Lys Met Lys Glu Leu Ala Thr Thr Tyr Lys Gln Met  
625 630 635 640

Glu Asn Asp Ile Gln Leu Tyr Gln Ser Gln Leu Glu Ala Lys Lys Lys  
645 650 655

Met Gln Val Asp Leu Glu Lys Glu Leu Gln Ser Ala Phe Asn Glu Ile  
660 665 670

Thr Lys Leu Thr Ser Leu Ile Asp Gly Lys Val Pro Lys Asp Leu Leu  
675 680 685

Cys Asn Leu Glu Leu Glu Gly Lys Ile Thr Asp Leu Gln Lys Glu Leu  
690 695 700

Asn Lys Glu Val Glu Glu Asn Glu Ala Leu Arg Glu Glu Val Ile Leu  
705 710 715 720

Leu Ser Glu Leu Lys Ser Leu Pro Ser Glu Val Glu Arg Leu Arg Lys  
725 730 735

Glu	Ile	Gln	Asp	Lys	Ser	Glu	Glu	Leu	His	Ile	Ile	Thr	Ser	Glu	Lys	
			740					745					750			
Asp	Lys	Leu	Phe	Ser	Glu	Val	Val	His	Lys	Glu	Ser	Arg	Val	Gln	Gly	
		755					760					765				
Leu	Leu	Glu	Glu	Ile	Gly	Lys	Thr	Lys	Asp	Asp	Leu	Ala	Thr	Thr	Gln	
	770					775					780					
Ser	Asn	Tyr	Lys	Ser	Thr	Asp	Gln	Glu	Phe	Gln	Asn	Phe	Lys	Thr	Leu	
785					790					795					800	
His	Met	Asp	Phe	Glu	Gln	Lys	Tyr	Lys	Met	Val	Leu	Glu	Glu	Asn	Glu	
			805						810					815		
Arg	Met	Asn	Gln	Glu	Ile	Val	Asn	Leu	Ser	Lys	Glu	Ala	Gln	Lys	Phe	
			820					825					830			
Asp	Ser	Ser	Leu	Gly	Ala	Leu	Lys	Thr	Glu	Leu	Ser	Tyr	Lys	Thr	Gln	
		835					840					845				
Glu	Leu	Gln	Glu	Lys	Thr	Arg	Glu	Val	Gln	Glu	Arg	Leu	Asn	Glu	Met	
	850					855					860					
Glu	Gln	Leu	Lys	Glu	Gln	Leu	Glu	Asn	Arg	Asp	Ser	Pro	Leu	Gln	Thr	
865					870					875					880	
Val	Glu	Arg	Glu	Lys	Thr	Leu	Ile	Thr	Glu	Lys	Leu	Gln	Gln	Thr	Leu	
			885						890					895		
Glu	Glu	Val	Lys	Thr	Leu	Thr	Gln	Glu	Lys	Asp	Asp	Leu	Lys	Gln	Leu	
			900					905					910			
Gln	Glu	Ser	Leu	Gln	Ile	Glu	Arg	Asp	Gln	Leu	Lys	Ser	Asp	Ile	His	
		915					920					925				
Asp	Thr	Val	Asn	Met	Asn	Ile	Asp	Thr	Gln	Glu	Gln	Leu	Arg	Asn	Ala	
	930					935						940				
Leu	Glu	Ser	Leu	Lys	Gln	His	Gln	Glu	Thr	Ile	Asn	Thr	Leu	Lys	Ser	
945						950					955				960	
Lys	Ile	Ser	Glu	Glu	Val	Ser	Arg	Asn	Leu	His	Met	Glu	Glu	Asn	Thr	
				965					970					975		

Gly Glu Thr Lys Asp Glu Phe Gln Gln Lys Met Val Gly Ile Asp Lys  
980 985 990

Lys Gln Asp Leu Glu Ala Lys Asn Thr Gln Thr Leu Thr Ala Asp Val  
995 1000 1005

Lys Asp Asn Glu Ile Ile Glu Gln Gln Arg Lys Ile Phe Ser Leu  
1010 1015 1020

Ile Gln Glu Lys Asn Glu Leu Gln Gln Met Leu Glu Ser Val Ile  
1025 1030 1035

Ala Glu Lys Glu Gln Leu Lys Thr Asp Leu Lys Glu Asn Ile Glu  
1040 1045 1050

Met Thr Ile Glu Asn Gln Glu Glu Leu Arg Leu Leu Gly Asp Glu  
1055 1060 1065

Leu Lys Lys Gln Gln Glu Ile Val Ala Gln Glu Lys Asn His Ala  
1070 1075 1080

Ile Lys Lys Glu Gly Glu Leu Ser Arg Thr Cys Asp Arg Leu Ala  
1085 1090 1095

Glu Val Glu Glu Lys Leu Lys Glu Lys Ser Gln Gln Leu Gln Glu  
1100 1105 1110

Lys Gln Gln Gln Leu Leu Asn Val Gln Glu Glu Met Ser Glu Met  
1115 1120 1125

Gln Lys Lys Ile Asn Glu Ile Glu Asn Leu Lys Asn Glu Leu Lys  
1130 1135 1140

Asn Lys Glu Leu Thr Leu Glu His Met Glu Thr Glu Arg Leu Glu  
1145 1150 1155

Leu Ala Gln Lys Leu Asn Glu Asn Tyr Glu Glu Val Lys Ser Ile  
1160 1165 1170

Thr Lys Glu Arg Lys Val Leu Lys Glu Leu Gln Lys Ser Phe Glu  
1175 1180 1185

Thr Glu	Arg Asp His Leu Arg	Gly Tyr Ile Arg Glu	Ile Glu Ala
1190	1195	1200	
Thr Gly	Leu Gln Thr Lys Glu	Glu Leu Lys Ile Ala	His Ile His
1205	1210	1215	
Leu Lys	Glu His Gln Glu Thr	Ile Asp Glu Leu Arg	Arg Ser Val
1220	1225	1230	
Ser Glu	Lys Thr Ala Gln Ile	Ile Asn Thr Gln Asp	Leu Glu Lys
1235	1240	1245	
Ser His	Thr Lys Leu Gln Glu	Glu Ile Pro Val Leu	His Glu Glu
1250	1255	1260	
Gln Glu	Leu Leu Pro Asn Val	Lys Lys Val Ser Glu	Thr Gln Glu
1265	1270	1275	
Thr Met	Asn Glu Leu Glu Leu	Leu Thr Glu Gln Ser	Thr Thr Lys
1280	1285	1290	
Asp Ser	Thr Thr Leu Ala Arg	Ile Glu Met Glu Arg	Leu Arg Leu
1295	1300	1305	
Asn Glu	Lys Phe Gln Glu Ser	Gln Glu Glu Ile Lys	Ser Leu Thr
1310	1315	1320	
Lys Glu	Arg Asp Asn Leu Lys	Thr Ile Lys Glu Ala	Leu Glu Val
1325	1330	1335	
Lys His	Asp Gln Leu Lys Glu	His Ile Arg Glu Thr	Leu Ala Lys
1340	1345	1350	
Ile Gln	Glu Ser Gln Ser Lys	Gln Glu Gln Ser Leu	Asn Met Lys
1355	1360	1365	
Glu Lys	Asp Asn Glu Thr Thr	Lys Ile Val Ser Glu	Met Glu Gln
1370	1375	1380	
Phe Lys	Pro Lys Asp Ser Ala	Leu Leu Arg Ile Glu	Ile Glu Met
1385	1390	1395	
Leu Gly	Leu Ser Lys Arg Leu	Gln Glu Ser His Asp	Glu Met Lys
1400	1405	1410	

Ser Val	Ala Lys Glu Lys Asp	Asp Leu Gln Arg	Leu	Gln Glu Val
1415	1420		1425	
Leu Gln	Ser Glu Ser Asp Gln	Leu Lys Glu Asn	Ile	Lys Glu Ile
1430	1435		1440	
Val Ala	Lys His Leu Glu Thr	Glu Glu Glu Leu	Lys	Val Ala His
1445	1450		1455	
Cys Cys	Leu Lys Glu Gln Glu	Glu Thr Ile Asn	Glu	Leu Arg Val
1460	1465		1470	
Asn Leu	Ser Glu Lys Glu Thr	Glu Ile Ser Thr	Ile	Gln Lys Gln
1475	1480		1485	
Leu Glu	Ala Ile Asn Asp Lys	Leu Gln Asn Lys	Ile	Gln Glu Ile
1490	1495		1500	
Tyr Glu	Lys Glu Glu Gln Leu	Asn Ile Lys Gln	Ile	Ser Glu Val
1505	1510		1515	
Gln Glu	Asn Val Asn Glu Leu	Lys Gln Phe Lys	Glu	His Arg Lys
1520	1525		1530	
Ala Lys	Asp Ser Ala Leu Gln	Ser Ile Glu Ser	Lys	Met Leu Glu
1535	1540		1545	
Leu Thr	Asn Arg Leu Gln Glu	Ser Gln Glu Glu	Ile	Gln Ile Met
1550	1555		1560	
Ile Lys	Glu Lys Glu Glu Met	Lys Arg Val Gln	Glu	Ala Leu Gln
1565	1570		1575	
Ile Glu	Arg Asp Gln Leu Lys	Glu Asn Thr Lys	Glu	Ile Val Ala
1580	1585		1590	
Lys Met	Lys Glu Ser Gln Glu	Lys Glu Tyr Gln	Phe	Leu Lys Met
1595	1600		1605	
Thr Ala	Val Asn Glu Thr Gln	Glu Lys Met Cys	Glu	Ile Glu His
1610	1615		1620	

Leu Lys	Glu Gln Phe Glu Thr	Gln Lys Leu Asn Leu	Glu Asn Ile
1625	1630	1635	
Glu Thr	Glu Asn Ile Arg Leu	Thr Gln Ile Leu His	Glu Asn Leu
1640	1645	1650	
Glu Glu	Met Arg Ser Val Thr	Lys Glu Arg Asp Asp	Leu Arg Ser
1655	1660	1665	
Val Glu	Glu Thr Leu Lys Val	Glu Arg Asp Gln Leu	Lys Glu Asn
1670	1675	1680	
Leu Arg	Glu Thr Ile Thr Arg	Asp Leu Glu Lys Gln	Glu Glu Leu
1685	1690	1695	
Lys Ile	Val His Met His Leu	Lys Glu His Gln Glu	Thr Ile Asp
1700	1705	1710	
Lys Leu	Arg Gly Ile Val Ser	Glu Lys Thr Asn Glu	Ile Ser Asn
1715	1720	1725	
Met Gln	Lys Asp Leu Glu His	Ser Asn Asp Ala Leu	Lys Ala Gln
1730	1735	1740	
Asp Leu	Lys Ile Gln Glu Glu	Leu Arg Ile Ala His	Met His Leu
1745	1750	1755	
Lys Glu	Gln Gln Glu Thr Ile	Asp Lys Leu Arg Gly	Ile Val Ser
1760	1765	1770	
Glu Lys	Thr Asp Lys Leu Ser	Asn Met Gln Lys Asp	Leu Glu Asn
1775	1780	1785	
Ser Asn	Ala Lys Leu Gln Glu	Lys Ile Gln Glu Leu	Lys Ala Asn
1790	1795	1800	
Glu His	Gln Leu Ile Thr Leu	Lys Lys Asp Val Asn	Glu Thr Gln
1805	1810	1815	
Lys Lys	Val Ser Glu Met Glu	Gln Leu Lys Lys Gln	Ile Lys Asp
1820	1825	1830	
Gln Ser	Leu Thr Leu Ser Lys	Leu Glu Ile Glu Asn	Leu Asn Leu
1835	1840	1845	

Ala	Gln	Glu	Leu	His	Glu	Asn	Leu	Glu	Glu	Met	Lys	Ser	Val	Met
1850						1855					1860			
Lys	Glu	Arg	Asp	Asn	Leu	Arg	Arg	Val	Glu	Glu	Thr	Leu	Lys	Leu
1865						1870					1875			
Glu	Arg	Asp	Gln	Leu	Lys	Glu	Ser	Leu	Gln	Glu	Thr	Lys	Ala	Arg
1880						1885					1890			
Asp	Leu	Glu	Ile	Gln	Gln	Glu	Leu	Lys	Thr	Ala	Arg	Met	Leu	Ser
1895						1900					1905			
Lys	Glu	His	Lys	Glu	Thr	Val	Asp	Lys	Leu	Arg	Glu	Lys	Ile	Ser
1910						1915					1920			
Glu	Lys	Thr	Ile	Gln	Ile	Ser	Asp	Ile	Gln	Lys	Asp	Leu	Asp	Lys
1925						1930					1935			
Ser	Lys	Asp	Glu	Leu	Gln	Lys	Lys	Asp	Arg	Gln	Asn	His	Gln	Val
1940						1945					1950			
Lys	Pro	Glu	Lys	Arg	Leu	Leu	Ser	Asp	Gly	Gln	Gln	His	Leu	Met
1955						1960					1965			
Glu	Ser	Leu	Arg	Glu	Lys	Cys	Ser	Arg	Ile	Lys	Glu	Leu	Leu	Lys
1970						1975					1980			
Arg	Tyr	Ser	Glu	Met	Asp	Asp	His	Tyr	Glu	Cys	Leu	Asn	Arg	Leu
1985						1990					1995			
Ser	Leu	Asp	Leu	Glu	Lys	Glu	Ile	Glu	Phe	His	Arg	Ile	Met	Lys
2000						2005					2010			
Lys	Leu	Lys	Tyr	Val	Leu	Ser	Tyr	Val	Thr	Lys	Ile	Lys	Glu	Glu
2015						2020					2025			
Gln	His	Glu	Cys	Ile	Asn	Lys	Phe	Glu	Met	Asp	Phe	Ile	Asp	Glu
2030						2035					2040			
Val	Glu	Lys	Gln	Lys	Glu	Leu	Leu	Ile	Lys	Ile	Gln	His	Leu	Gln
2045						2050					2055			
Gln	Asp	Cys	Asp	Val	Pro	Ser	Arg	Glu	Leu	Arg	Asp	Leu	Lys	Leu
2060						2065					2070			

Asn	Gln	Asn	Met	Asp	Leu	His	Ile	Glu	Glu	Ile	Leu	Lys	Asp	Phe
2075						2080					2085			
Ser	Glu	Ser	Glu	Phe	Pro	Ser	Ile	Lys	Thr	Glu	Phe	Gln	Gln	Val
2090						2095					2100			
Leu	Ser	Asn	Arg	Lys	Glu	Met	Thr	Gln	Phe	Leu	Glu	Glu	Trp	Leu
2105						2110					2115			
Asn	Thr	Arg	Phe	Asp	Ile	Glu	Lys	Leu	Lys	Asn	Gly	Ile	Gln	Lys
2120						2125					2130			
Glu	Asn	Asp	Arg	Ile	Cys	Gln	Val	Asn	Asn	Phe	Phe	Asn	Asn	Arg
2135						2140					2145			
Ile	Ile	Ala	Ile	Met	Asn	Glu	Ser	Thr	Glu	Phe	Glu	Glu	Arg	Ser
2150						2155					2160			
Ala	Thr	Ile	Ser	Lys	Glu	Trp	Glu	Gln	Asp	Leu	Lys	Ser	Leu	Lys
2165						2170					2175			
Glu	Lys	Asn	Glu	Lys	Leu	Phe	Lys	Asn	Tyr	Gln	Thr	Leu	Lys	Thr
2180						2185					2190			
Ser	Leu	Ala	Ser	Gly	Ala	Gln	Val	Asn	Pro	Thr	Thr	Gln	Asp	Asn
2195						2200					2205			
Lys	Asn	Pro	His	Val	Thr	Ser	Arg	Ala	Thr	Gln	Leu	Thr	Thr	Glu
2210						2215					2220			
Lys	Ile	Arg	Glu	Leu	Glu	Asn	Ser	Leu	His	Glu	Ala	Lys	Glu	Ser
2225						2230					2235			
Ala	Met	His	Lys	Glu	Ser	Lys	Ile	Ile	Lys	Met	Gln	Lys	Glu	Leu
2240						2245					2250			
Glu	Val	Thr	Asn	Asp	Ile	Ile	Ala	Lys	Leu	Gln	Ala	Lys	Val	His
2255						2260					2265			
Glu	Ser	Asn	Lys	Cys	Leu	Glu	Lys	Thr	Lys	Glu	Thr	Ile	Gln	Val
2270						2275					2280			



Leu	Gln	Asp	Lys	Val	Ala	Leu	Gly	Ala	Lys	Pro	Tyr	Lys	Glu	Glu
2285						2290					2295			
Ile	Glu	Asp	Leu	Lys	Met	Lys	Leu	Val	Lys	Ile	Asp	Leu	Glu	Lys
2300						2305					2310			
Met	Lys	Asn	Ala	Lys	Glu	Phe	Glu	Lys	Glu	Ile	Ser	Ala	Thr	Lys
2315						2320					2325			
Ala	Thr	Val	Glu	Tyr	Gln	Lys	Glu	Val	Ile	Arg	Leu	Leu	Arg	Glu
2330						2335					2340			
Asn	Leu	Arg	Arg	Ser	Gln	Gln	Ala	Gln	Asp	Thr	Ser	Val	Ile	Ser
2345						2350					2355			
Glu	His	Thr	Asp	Pro	Gln	Pro	Ser	Asn	Lys	Pro	Leu	Thr	Cys	Gly
2360						2365					2370			
Gly	Gly	Ser	Gly	Ile	Val	Gln	Asn	Thr	Lys	Ala	Leu	Ile	Leu	Lys
2375						2380					2385			
Ser	Glu	His	Ile	Arg	Leu	Glu	Lys	Glu	Ile	Ser	Lys	Leu	Lys	Gln
2390						2395					2400			
Gln	Asn	Glu	Gln	Leu	Ile	Lys	Gln	Lys	Asn	Glu	Leu	Leu	Ser	Asn
2405						2410					2415			
Asn	Gln	His	Leu	Ser	Asn	Glu	Val	Lys	Thr	Trp	Lys	Glu	Arg	Thr
2420						2425					2430			
Leu	Lys	Arg	Glu	Ala	His	Lys	Gln	Val	Thr	Cys	Glu	Asn	Ser	Pro
2435						2440					2445			
Lys	Ser	Pro	Lys	Val	Thr	Gly	Thr	Ala	Ser	Lys	Lys	Lys	Gln	Ile
2450						2455					2460			
Thr	Pro	Ser	Gln	Cys	Lys	Glu	Arg	Asn	Leu	Gln	Asp	Pro	Val	Pro
2465						2470					2475			
Lys	Glu	Ser	Pro	Lys	Ser	Cys	Phe	Phe	Asp	Ser	Arg	Ser	Lys	Ser
2480						2485					2490			
Leu	Pro	Ser	Pro	His	Pro	Val	Arg	Tyr	Phe	Asp	Asn	Ser	Ser	Leu
2495						2500					2505			

Gly Leu Cys Pro Glu Val Gln Asn Ala Gly Ala Glu Ser Val Asp  
 2510 2515 2520

Ser Gln Pro Gly Pro Trp His Ala Ser Ser Gly Lys Asp Val Pro  
 2525 2530 2535

Glu Cys Lys Thr Gln  
 2540

<210> 10  
 <211> 7509  
 <212> DNA  
 <213> Homo sapiens

<400> 10  
 atggcgaggagg aaggagccgt ggccgtctgc gtgcgagtgc ggccgctgaa cagcagagaa 60  
 gaatcacttg gagaaactgc ccaagtttac tggaaaactg acaataatgt catttatcaa 120  
 gttgatggaa gtaaatacctt caattttgat cgtgtcttct atggtaatga aactaccaa 180  
 aatgtgtatg aagaaatagc agcaccaatc atcgattctg ccatacaagg ctacaatggt 240  
 actatatttg cctatggaca gactgcttca ggaaaaacat ataccatgat gggttcagaa 300  
 gatcatttgg gagttatacc cagggcaatt catgacattt tccaaaaaat taagaagttt 360  
 cctgataggg aatttctctt acgtgtatct tacatggaaa tatacaatga aaccattaca 420  
 gatttactct gtggcactca aaaaatgaaa cctttaatta ttcgagaaga tgtcaatagg 480  
 aatgtgtatg ttgctgatct cacagaagaa gttgtatata catcagaaat ggctttgaaa 540  
 tggattacaa agggagaaaa gagcaggcat tatggagaaa caaaaatgaa tcaaagaagc 600  
 agtcgttctc ataccatctt taggatgatt ttggaaagca gagagaaggg tgaaccttct 660  
 aattgtgaag gatctgttaa ggtatcccat ttgaatttgg ttgatcttgc aggcagtga 720  
 agagctgctc aaacaggcgc tgcagggtgtg cggctcaagg aaggctgtaa tataaatcga 780  
 agcttattta ttttgggaca agtgatcaag aaacttagtg atggacaagt tggtggtttc 840  
 ataaattatc gagatagcaa gttaacacga attctccaga attccttggg aggaaatgca 900  
 aagacacgta ttatctgcac aattactcca gtatcttttg atgaaacact tactgctctc 960  
 cagtttgcca gtactgctaa atatatgaag aatactcctt atgttaatga ggtatcaact 1020  
 gatgaagctc tcttgaaaag gtatagaaaa gaaataatgg atcttaaaaa acaattagag 1080  
 gaggtttctt tagagacgcg ggctcaggca atggaaaaag accaattggc ccaacttttg 1140  
 gaagaaaaag atttgcttca gaaagtacag aatgagaaaa ttgaaaactt aacacggatg 1200

ctggtgacct cttcttcctt cacgttgcaa caggaattaa aggctaaaag aaaacgaaga	1260
gttacttgggt gccttggcaa aattaacaaa atgaagaact caaactatgc agatcaat	1320
aatataccaa caaatataac aacaaaaaca cataagcttt ctataaat	1380
attgatgaat ctgtctgttc agagtctgat gttttcagta acactcttga tacattaagt	1440
gagatagaat ggaatccagc aacaaagcta ctaaatacagg agaataataga aagtgaagttg	1500
aactcacttc gtgctgacta tgataatctg gtattagact atgaacaact acgaacagaa	1560
aaagaagaaa tggaattgaa attaaaagaa aagaatgatt tggatgaatt tgaggctcta	1620
gaaagaaaaa ctaaaaaaga tcaagaggaa agcattgaag acccaaaaca aatgaagcag	1680
actctgtttg atgctgaaac tgtagccctt gatgccaaaga gagaatcagc ctttcttaga	1740
agtgaaaatc tggagttgaa ggagaaaatg aaagaacttg caactacata caagcaaatg	1800
gaaaatgata ttcagttata tcaaagccaa ttggaggcaa aaaagaaaat gcaagttgat	1860
ctggagaaag aattacaatc tgcttttaat gagataacaa aactcacctc ccttatagat	1920
ggcaaagttc caaaagattt gctctgtaat ttggaattgg aaggaaagat tactgatctt	1980
cagaaagaac taaataaaga agttgaagaa aatgaagctt tgcgggaaga agtcattttg	2040
ctttcagaat tgaaatcttt accttctgaa gtagaaaggc tgaggaaaga gatacaagac	2100
aaatctgaag agctccatat aataacatca gaaaaagata aattgttttc tgaagtagtt	2160
cataaggaga gtagagttca aggtttactt gaagaaattg ggaaaacaaa agatgacct	2220
gcaactacac agtcgaatta taaaagcact gatcaagaat tccaaaattt caaaaccctt	2280
catatggact ttgagcaaaa gtataagatg gtccttgagg agaataagag aatgaatcag	2340
gaaatagtta atctctctaa agaagcccaa aaatttgatt cgagtttggg tgctttgaag	2400
accgagcttt ottacaagac ccaagaactt caggagaaaa cacgtgaggt tcaagaaaga	2460
ctaaatgaga tggaacagct gaaggaacaa ttagaaaata gagattctcc gctgcaaact	2520
gtagaaaggg agaaaacact gattactgag aaactgcagc aaactttaga agaagtaaaa	2580
actttaactc aagaaaaaga tgatctaaaa caactccaag aaagcttgca aattgagagg	2640
gaccaactca aaagtgatat tcacgatact gttaacatga atatagatac tcaagaacaa	2700
ttacgaaatg ctcttgagtc tctgaaacaa catcaagaaa caattaatac actaaaatcg	2760
aaaatttctg aggaagtttc caggaatttg catatggagg aaaatacagg agaaactaaa	2820
gatgaatttc agcaaaagat gggtggcata gataaaaaac aggatttgga agctaaaaat	2880
acccaaacac taactgcaga tggttaaggat aatgagataa ttgagcaaca aaggaagata	2940
ttttctttaa tacaggagaa aaatgaactc caacaaatgt tagagagtgt tatagcagaa	3000

aaggaacaat tgaagactga cctaaaggaa aatattgaaa tgaccattga aaaccaggaa	3060
gaattaagac ttcttgggga tgaacttaaa aagcaacaag agatagttgc acaagaaaag	3120
aacatgccca taaagaaaga aggagagctt tctaggacct gtgacagact ggcagaagtt	3180
gaagaaaaac taaaggaaaa gagccagcaa ctccaagaaa aacagcaaca acttcttaat	3240
gtacaagaag agatgagtga gatgcagaaa aagattaatg aaatagagaa tttaaagaat	3300
gaattaaaga acaaagaatt gacattggaa catatggaaa cagagaggct tgagttggct	3360
cagaaactta atgaaaatta tgaggaagtg aaatctataa ccaaagaaag aaaagttcta	3420
aaggaattac agaagtcatt tgaaacagag agagaccacc ttagaggata tataagagaa	3480
attgaagcta caggcctaca aaccaaagaa gaactaaaaa ttgctcatat tcacctaaaa	3540
gaacaccaag aaactattga tgaactaaga agaagcgtat ctgagaagac agctcaaata	3600
ataaatactc aggacttaga aaaatcccat accaaattac aagaagagat cccagtgcct	3660
catgaggaac aagagttact gcctaattgtg aaaaaagtca gtgagactca ggaaacaatg	3720
aatgaactgg agttattaac agaacagtcc acaaccaagg actcaacaac actggcaaga	3780
atagaaatgg aaaggctcag gttgaatgaa aaatttcaag aaagtcagga agagataaaa	3840
tctctaacca aggaaagaga caaccttaaa acgataaaag aagcccttga agttaaacat	3900
gaccagctga aagaacatat tagagaaact ttggctaaaa tccaggagtc tcaaagcaaa	3960
caagaacagt ccttaaatat gaaagaaaaa gacaatgaaa ctacccaaat cgtgagtga	4020
atggagcaat tcaaacccaa agattcagca ctactaagga tagaaataga aatgctcgga	4080
ttgtccaaaa gacttcaaga aagtcatgat gaaatgaaat ctgtagctaa ggagaaagat	4140
gacctacaga ggctgcaaga agttcttcaa tctgaaagtg accagctcaa agaaaacata	4200
aaagaaattg tagctaaaca cctggaaact gaagaggaac ttaaagttgc tcattgttgc	4260
ctgaaagaac aagaggaaac tattaatgag ttaagagtga atctttcaga gaaggaaact	4320
gaaatatcaa ccattcaaaa gcagttagaa gcaatcaatg ataaattaca gaacaagatc	4380
caagagattt atgagaaaga ggaacaactt aatataaaac aaattagtga ggttcaggaa	4440
aacgtgaatg aactgaaaca attcaaggag catcgcaaag ccaaggattc agcactacaa	4500
agtatagaaa gtaagatgct cgagttgacc aacagacttc aagaaagtca agaagaaata	4560
caaattatga ttaaggaaaa agaggaaatg aaaagagtac aggaggccct tcagatagag	4620
agagaccaac tgaaagaaaa cactaaagaa attgtagcta aaatgaaaga atctcaagaa	4680
aaagaatatc agtttcttaa gatgacagct gtcaatgaga ctcaggagaa aatgtgtgaa	4740

atagaacact tgaaggagca atttgagacc cagaagttaa acctggaaaa catagaaacg	4800
gagaatataa ggttgactca gatactacat gaaaaccttg aagaaatgag atctgtaaca	4860
aaagaaagag atgaccttag gagtgtggag gagactctca aagtagagag agaccagctc	4920
aaggaaaacc ttagagaaac tataactaga gacctagaaa aacaagagga gctaaaaatt	4980
gttcacatgc atctgaagga gcaccaagaa actattgata aactaagagg gattgtttca	5040
gagaaaacaa atgaaatatc aaatatgcaa aaggacttag aacactcaaa tgatgcctta	5100
aaagcacagg atctgaaaat acaagaggaa ctaagaattg ctcacatgca tctgaaagag	5160
cagcaggaaa ctattgacaa actcagagga attgtttctg agaagacaga taaactatca	5220
aatatgcaaa aagattttaga aaattcaaat gctaaattac aagaaaagat tcaagaactt	5280
aaggcaaatg aacatcaact tattacgtta aaaaagatg tcaatgagac acagaaaaaa	5340
gtgtctgaaa tggagcaact aaagaaacaa ataaaagacc aaagcttaac tctgagtaaa	5400
ttagaaatag agaattttaa tttggctcaa gaacttcatg aaaaccttga agaaatgaaa	5460
tctgtaatga aagaaagaga taatctaaga agagtagagg agacactcaa actggagaga	5520
gaccaactca aggaaagcct gcaagaaacc aaagctagag atctggaaat acaacaggaa	5580
ctaaaaactg ctcgatatgct atcaaaagaa cacaagaaa ctgttgataa acttagagaa	5640
aaaatttcag aaaagacaat tcaaatttca gacattcaaa aggattttaga taaatcaaaa	5700
gatgaattac agaaaaagga ccgacagaac caccaagtaa aacctgaaaa aaggttacta	5760
agtgatggac aacagcacct tatggaaagc ctgagagaaa agtgctctag aataaaagag	5820
cttttgaaga gatactcaga gatggatgat cattatgagt gcttgaatag attgtctctt	5880
gacttgagga aggaaattga attccacaga atcatgaaga aactgaagta tgtgttaagc	5940
tatgttacia aaataaaaga agaacaacat gaatgcatca ataaatttga aatggatttt	6000
attgatgaag tggaaaagca aaaggaattg ctaattaaaa tacagcacct tcaacaagat	6060
tgtgatgtac catccagaga attaagggat ctcaaattga accagaatat ggatctacat	6120
attgaggaaa ttctcaaaga tttctcagaa agtgagttcc ctagcataaa gactgaattt	6180
caacaagtac taagtaatag gaaagaaatg acacagtttt tggaagagtg gttaaatact	6240
cgttttgata tagaaaagct taaaaatggc atccagaaaag aaaatgatag gatttgtcaa	6300
gtgaataact tctttaataa cagaataatt gccataatga atgaatcaac agagtttgag	6360
gaaagaagtg ctaccatatc caaagagtgg gaacaggacc tgaaatcact gaaagagaaa	6420
aatgaaaaac tattttaaaaa ctaccaaaca ttgaagactt ccttggcatc tgggtgccag	6480
gttaatccta ccacacaaga caataagaat cctcatgtta catcaagagc tacacagtta	6540

accacagaga aaattcgaga gctggaaaat tcaactgcatg aagctaaaga aagtgctatg 6600  
 cataaggaaa gcaagattat aaagatgcag aaagaacttg aggtgactaa tgacataata 6660  
 gcaaaaacttc aagccaaagt tcatgaatca aataaatgcc ttgaaaaaac aaaagagaca 6720  
 attcaagtac ttcaggacaa agttgcttta ggagctaagc catataaaga agaaattgaa 6780  
 gatctcaaaa tgaagcttgt gaaaatagac ctagagaaaa tgaaaaatgc caaagaattt 6840  
 gaaaaggaaa tcagtgttac aaaagccact gtagaatatc aaaaggaagt tataaggcta 6900  
 ttgagagaaa atctcagaag aagtcaacag gcccaagata cctcagtgat atcagaacat 6960  
 actgatcctc agccttcaaa taaaccctta acttgtggag gtggcagcgg cattgtacaa 7020  
 aacacaaaag ctcttatttt gaaaagtga catataaggc tagaaaaaga aatttctaag 7080  
 ttaaagcagc aaaatgaaca gctaataaaa caaagaatg aattgttaag caataatcag 7140  
 catctttcca atgaggtcaa aacttggaag gaaagaacc ttaaaagaga ggctcacaaa 7200  
 caagtaactt gtgagaattc tccaaagtct cctaaagtga ctggaacagc ttctaaaaag 7260  
 aaacaaatta caccctctca atgcaaggaa cggaatttac aagatcctgt gccaaaggaa 7320  
 tcacccaaaat cttgtttttt tgatagccga tcaaagtctt taccatcacc tcatccagtt 7380  
 cgctattttg ataactcaag tttaggcctt tgtccagagg tgcaaatgc aggagcagag 7440  
 agtgtggatt ctcagccagg tccttggcac gcctcctcag gcaaggatgt gcctgagtgc 7500  
 aaaactcag 7509

<210> 11  
 <211> 2503  
 <212> PRT  
 <213> Homo sapiens

<400> 11

Met Ala Glu Glu Gly Ala Val Ala Val Cys Val Arg Val Arg Pro Leu  
 1 5 10 15

Asn Ser Arg Glu Glu Ser Leu Gly Glu Thr Ala Gln Val Tyr Trp Lys  
 20 25 30

Thr Asp Asn Asn Val Ile Tyr Gln Val Asp Gly Ser Lys Ser Phe Asn  
 35 40 45

Phe Asp Arg Val Phe His Gly Asn Glu Thr Thr Lys Asn Val Tyr Glu  
 50 55 60

Glu	Ile	Ala	Ala	Pro	Ile	Ile	Asp	Ser	Ala	Ile	Gln	Gly	Tyr	Asn	Gly		65	70	75	80
Thr	Ile	Phe	Ala	Tyr	Gly	Gln	Thr	Ala	Ser	Gly	Lys	Thr	Tyr	Thr	Met		85	90	95	
Met	Gly	Ser	Glu	Asp	His	Leu	Gly	Val	Ile	Pro	Arg	Ala	Ile	His	Asp		100	105	110	
Ile	Phe	Gln	Lys	Ile	Lys	Lys	Phe	Pro	Asp	Arg	Glu	Phe	Leu	Leu	Arg		115	120	125	
Val	Ser	Tyr	Met	Glu	Ile	Tyr	Asn	Glu	Thr	Ile	Thr	Asp	Leu	Leu	Cys		130	135	140	
Gly	Thr	Gln	Lys	Met	Lys	Pro	Leu	Ile	Ile	Arg	Glu	Asp	Val	Asn	Arg		145	150	155	160
Asn	Val	Tyr	Val	Ala	Asp	Leu	Thr	Glu	Glu	Val	Val	Tyr	Thr	Ser	Glu		165	170	175	
Met	Ala	Leu	Lys	Trp	Ile	Thr	Lys	Gly	Glu	Lys	Ser	Arg	His	Tyr	Gly		180	185	190	
Glu	Thr	Lys	Met	Asn	Gln	Arg	Ser	Ser	Arg	Ser	His	Thr	Ile	Phe	Arg		195	200	205	
Met	Ile	Leu	Glu	Ser	Arg	Glu	Lys	Gly	Glu	Pro	Ser	Asn	Cys	Glu	Gly		210	215	220	
Ser	Val	Lys	Val	Ser	His	Leu	Asn	Leu	Val	Asp	Leu	Ala	Gly	Ser	Glu		225	230	235	240
Arg	Ala	Ala	Gln	Thr	Gly	Ala	Ala	Gly	Val	Arg	Leu	Lys	Glu	Gly	Cys		245	250	255	
Asn	Ile	Asn	Arg	Ser	Leu	Phe	Ile	Leu	Gly	Gln	Val	Ile	Lys	Lys	Leu		260	265	270	
Ser	Asp	Gly	Gln	Val	Gly	Gly	Phe	Ile	Asn	Tyr	Arg	Asp	Ser	Lys	Leu		275	280	285	
Thr	Arg	Ile	Leu	Gln	Asn	Ser	Leu	Gly	Gly	Asn	Ala	Lys	Thr	Arg	Ile		290	295	300	

Ile Cys Thr Ile Thr Pro Val Ser Phe Asp Glu Thr Leu Thr Ala Leu  
 305 310 315 320

Gln Phe Ala Ser Thr Ala Lys Tyr Met Lys Asn Thr Pro Tyr Val Asn  
 325 330 335

Glu Val Ser Thr Asp Glu Ala Leu Leu Lys Arg Tyr Arg Lys Glu Ile  
 340 345 350

Met Asp Leu Lys Lys Gln Leu Glu Glu Val Ser Leu Glu Thr Arg Ala  
 355 360 365

Gln Ala Met Glu Lys Asp Gln Leu Ala Gln Leu Leu Glu Glu Lys Asp  
 370 375 380

Leu Leu Gln Lys Val Gln Asn Glu Lys Ile Glu Asn Leu Thr Arg Met  
 385 390 395 400

Leu Val Thr Ser Ser Ser Leu Thr Leu Gln Gln Glu Leu Lys Ala Lys  
 405 410 415

Arg Lys Arg Arg Val Thr Trp Cys Leu Gly Lys Ile Asn Lys Met Lys  
 420 425 430

Asn Ser Asn Tyr Ala Asp Gln Phe Asn Ile Pro Thr Asn Ile Thr Thr  
 435 440 445

Lys Thr His Lys Leu Ser Ile Asn Leu Leu Arg Glu Ile Asp Glu Ser  
 450 455 460

Val Cys Ser Glu Ser Asp Val Phe Ser Asn Thr Leu Asp Thr Leu Ser  
 465 470 475 480

Glu Ile Glu Trp Asn Pro Ala Thr Lys Leu Leu Asn Gln Glu Asn Ile  
 485 490 495

Glu Ser Glu Leu Asn Ser Leu Arg Ala Asp Tyr Asp Asn Leu Val Leu  
 500 505 510

Asp Tyr Glu Gln Leu Arg Thr Glu Lys Glu Glu Met Glu Leu Lys Leu  
 515 520 525



Lys Glu Lys Asn Asp Leu Asp Glu Phe Glu Ala Leu Glu Arg Lys Thr  
530 535 540

Lys Lys Asp Gln Glu Glu Ser Ile Glu Asp Pro Lys Gln Met Lys Gln  
545 550 555 560

Thr Leu Phe Asp Ala Glu Thr Val Ala Leu Asp Ala Lys Arg Glu Ser  
565 570 575

Ala Phe Leu Arg Ser Glu Asn Leu Glu Leu Lys Glu Lys Met Lys Glu  
580 585 590

Leu Ala Thr Thr Tyr Lys Gln Met Glu Asn Asp Ile Gln Leu Tyr Gln  
595 600 605

Ser Gln Leu Glu Ala Lys Lys Lys Met Gln Val Asp Leu Glu Lys Glu  
610 615 620

Leu Gln Ser Ala Phe Asn Glu Ile Thr Lys Leu Thr Ser Leu Ile Asp  
625 630 635 640

Gly Lys Val Pro Lys Asp Leu Leu Cys Asn Leu Glu Leu Glu Gly Lys  
645 650 655

Ile Thr Asp Leu Gln Lys Glu Leu Asn Lys Glu Val Glu Glu Asn Glu  
660 665 670

Ala Leu Arg Glu Glu Val Ile Leu Leu Ser Glu Leu Lys Ser Leu Pro  
675 680 685

Ser Glu Val Glu Arg Leu Arg Lys Glu Ile Gln Asp Lys Ser Glu Glu  
690 695 700

Leu His Ile Ile Thr Ser Glu Lys Asp Lys Leu Phe Ser Glu Val Val  
705 710 715 720

His Lys Glu Ser Arg Val Gln Gly Leu Leu Glu Glu Ile Gly Lys Thr  
725 730 735

Lys Asp Asp Leu Ala Thr Thr Gln Ser Asn Tyr Lys Ser Thr Asp Gln  
740 745 750

Glu Phe Gln Asn Phe Lys Thr Leu His Met Asp Phe Glu Gln Lys Tyr  
755 760 765

Lys Met Val Leu Glu Glu Asn Glu Arg Met Asn Gln Glu Ile Val Asn  
 770 775 780

Leu Ser Lys Glu Ala Gln Lys Phe Asp Ser Ser Leu Gly Ala Leu Lys  
 785 790 795 800

Thr Glu Leu Ser Tyr Lys Thr Gln Glu Leu Gln Glu Lys Thr Arg Glu  
 805 810 815

Val Gln Glu Arg Leu Asn Glu Met Glu Gln Leu Lys Glu Gln Leu Glu  
 820 825 830

Asn Arg Asp Ser Pro Leu Gln Thr Val Glu Arg Glu Lys Thr Leu Ile  
 835 840 845

Thr Glu Lys Leu Gln Gln Thr Leu Glu Glu Val Lys Thr Leu Thr Gln  
 850 855 860

Glu Lys Asp Asp Leu Lys Gln Leu Gln Glu Ser Leu Gln Ile Glu Arg  
 865 870 875 880

Asp Gln Leu Lys Ser Asp Ile His Asp Thr Val Asn Met Asn Ile Asp  
 885 890 895

Thr Gln Glu Gln Leu Arg Asn Ala Leu Glu Ser Leu Lys Gln His Gln  
 900 905 910

Glu Thr Ile Asn Thr Leu Lys Ser Lys Ile Ser Glu Glu Val Ser Arg  
 915 920 925

Asn Leu His Met Glu Glu Asn Thr Gly Glu Thr Lys Asp Glu Phe Gln  
 930 935 940

Gln Lys Met Val Gly Ile Asp Lys Lys Gln Asp Leu Glu Ala Lys Asn  
 945 950 955 960

Thr Gln Thr Leu Thr Ala Asp Val Lys Asp Asn Glu Ile Ile Glu Gln  
 965 970 975

Gln Arg Lys Ile Phe Ser Leu Ile Gln Glu Lys Asn Glu Leu Gln Gln  
 980 985 990

Met Leu Glu Ser Val Ile Ala Glu Lys Glu Gln Leu Lys Thr Asp Leu  
 995 1000 1005

Lys Glu Asn Ile Glu Met Thr Ile Glu Asn Gln Glu Glu Leu Arg  
 1010 1015 1020

Leu Leu Gly Asp Glu Leu Lys Lys Gln Gln Glu Ile Val Ala Gln  
 1025 1030 1035

Glu Lys Asn His Ala Ile Lys Lys Glu Gly Glu Leu Ser Arg Thr  
 1040 1045 1050

Cys Asp Arg Leu Ala Glu Val Glu Glu Lys Leu Lys Glu Lys Ser  
 1055 1060 1065

Gln Gln Leu Gln Glu Lys Gln Gln Gln Leu Leu Asn Val Gln Glu  
 1070 1075 1080

Glu Met Ser Glu Met Gln Lys Lys Ile Asn Glu Ile Glu Asn Leu  
 1085 1090 1095

Lys Asn Glu Leu Lys Asn Lys Glu Leu Thr Leu Glu His Met Glu  
 1100 1105 1110

Thr Glu Arg Leu Glu Leu Ala Gln Lys Leu Asn Glu Asn Tyr Glu  
 1115 1120 1125

Glu Val Lys Ser Ile Thr Lys Glu Arg Lys Val Leu Lys Glu Leu  
 1130 1135 1140

Gln Lys Ser Phe Glu Thr Glu Arg Asp His Leu Arg Gly Tyr Ile  
 1145 1150 1155

Arg Glu Ile Glu Ala Thr Gly Leu Gln Thr Lys Glu Glu Leu Lys  
 1160 1165 1170

Ile Ala His Ile His Leu Lys Glu His Gln Glu Thr Ile Asp Glu  
 1175 1180 1185

Leu Arg Arg Ser Val Ser Glu Lys Thr Ala Gln Ile Ile Asn Thr  
 1190 1195 1200

Gln Asp Leu Glu Lys Ser His Thr Lys Leu Gln Glu Glu Ile Pro  
 1205 1210 1215

Val	Leu	His	Glu	Glu	Gln	Glu	Leu	Leu	Pro	Asn	Val	Lys	Lys	Val
1220						1225					1230			
Ser	Glu	Thr	Gln	Glu	Thr	Met	Asn	Glu	Leu	Glu	Leu	Leu	Thr	Glu
1235						1240					1245			
Gln	Ser	Thr	Thr	Lys	Asp	Ser	Thr	Thr	Leu	Ala	Arg	Ile	Glu	Met
1250						1255					1260			
Glu	Arg	Leu	Arg	Leu	Asn	Glu	Lys	Phe	Gln	Glu	Ser	Gln	Glu	Glu
1265						1270					1275			
Ile	Lys	Ser	Leu	Thr	Lys	Glu	Arg	Asp	Asn	Leu	Lys	Thr	Ile	Lys
1280						1285					1290			
Glu	Ala	Leu	Glu	Val	Lys	His	Asp	Gln	Leu	Lys	Glu	His	Ile	Arg
1295						1300					1305			
Glu	Thr	Leu	Ala	Lys	Ile	Gln	Glu	Ser	Gln	Ser	Lys	Gln	Glu	Gln
1310						1315					1320			
Ser	Leu	Asn	Met	Lys	Glu	Lys	Asp	Asn	Glu	Thr	Thr	Lys	Ile	Val
1325						1330					1335			
Ser	Glu	Met	Glu	Gln	Phe	Lys	Pro	Lys	Asp	Ser	Ala	Leu	Leu	Arg
1340						1345					1350			
Ile	Glu	Ile	Glu	Met	Leu	Gly	Leu	Ser	Lys	Arg	Leu	Gln	Glu	Ser
1355						1360					1365			
His	Asp	Glu	Met	Lys	Ser	Val	Ala	Lys	Glu	Lys	Asp	Asp	Leu	Gln
1370						1375					1380			
Arg	Leu	Gln	Glu	Val	Leu	Gln	Ser	Glu	Ser	Asp	Gln	Leu	Lys	Glu
1385						1390					1395			
Asn	Ile	Lys	Glu	Ile	Val	Ala	Lys	His	Leu	Glu	Thr	Glu	Glu	Glu
1400						1405					1410			
Leu	Lys	Val	Ala	His	Cys	Cys	Leu	Lys	Glu	Gln	Glu	Glu	Thr	Ile
1415						1420					1425			
Asn	Glu	Leu	Arg	Val	Asn	Leu	Ser	Glu	Lys	Glu	Thr	Glu	Ile	Ser
1430						1435					1440			

Thr	Ile	Gln	Lys	Gln	Leu	Glu	Ala	Ile	Asn	Asp	Lys	Leu	Gln	Asn
1445						1450					1455			
Lys	Ile	Gln	Glu	Ile	Tyr	Glu	Lys	Glu	Glu	Gln	Leu	Asn	Ile	Lys
1460						1465					1470			
Gln	Ile	Ser	Glu	Val	Gln	Glu	Asn	Val	Asn	Glu	Leu	Lys	Gln	Phe
1475						1480					1485			
Lys	Glu	His	Arg	Lys	Ala	Lys	Asp	Ser	Ala	Leu	Gln	Ser	Ile	Glu
1490						1495					1500			
Ser	Lys	Met	Leu	Glu	Leu	Thr	Asn	Arg	Leu	Gln	Glu	Ser	Gln	Glu
1505						1510					1515			
Glu	Ile	Gln	Ile	Met	Ile	Lys	Glu	Lys	Glu	Glu	Met	Lys	Arg	Val
1520						1525					1530			
Gln	Glu	Ala	Leu	Gln	Ile	Glu	Arg	Asp	Gln	Leu	Lys	Glu	Asn	Thr
1535						1540					1545			
Lys	Glu	Ile	Val	Ala	Lys	Met	Lys	Glu	Ser	Gln	Glu	Lys	Glu	Tyr
1550						1555					1560			
Gln	Phe	Leu	Lys	Met	Thr	Ala	Val	Asn	Glu	Thr	Gln	Glu	Lys	Met
1565						1570					1575			
Cys	Glu	Ile	Glu	His	Leu	Lys	Glu	Gln	Phe	Glu	Thr	Gln	Lys	Leu
1580						1585					1590			
Asn	Leu	Glu	Asn	Ile	Glu	Thr	Glu	Asn	Ile	Arg	Leu	Thr	Gln	Ile
1595						1600					1605			
Leu	His	Glu	Asn	Leu	Glu	Glu	Met	Arg	Ser	Val	Thr	Lys	Glu	Arg
1610						1615					1620			
Asp	Asp	Leu	Arg	Ser	Val	Glu	Glu	Thr	Leu	Lys	Val	Glu	Arg	Asp
1625						1630					1635			
Gln	Leu	Lys	Glu	Asn	Leu	Arg	Glu	Thr	Ile	Thr	Arg	Asp	Leu	Glu
1640						1645					1650			
Lys	Gln	Glu	Glu	Leu	Lys	Ile	Val	His	Met	His	Leu	Lys	Glu	His
1655						1660					1665			

Gln Glu Thr Ile Asp Lys Leu Arg Gly Ile Val Ser Glu Lys Thr  
 1670 1675 1680

Asn Glu Ile Ser Asn Met Gln Lys Asp Leu Glu His Ser Asn Asp  
 1685 1690 1695

Ala Leu Lys Ala Gln Asp Leu Lys Ile Gln Glu Glu Leu Arg Ile  
 1700 1705 1710

Ala His Met His Leu Lys Glu Gln Gln Glu Thr Ile Asp Lys Leu  
 1715 1720 1725

Arg Gly Ile Val Ser Glu Lys Thr Asp Lys Leu Ser Asn Met Gln  
 1730 1735 1740

Lys Asp Leu Glu Asn Ser Asn Ala Lys Leu Gln Glu Lys Ile Gln  
 1745 1750 1755

Glu Leu Lys Ala Asn Glu His Gln Leu Ile Thr Leu Lys Lys Asp  
 1760 1765 1770

Val Asn Glu Thr Gln Lys Lys Val Ser Glu Met Glu Gln Leu Lys  
 1775 1780 1785

Lys Gln Ile Lys Asp Gln Ser Leu Thr Leu Ser Lys Leu Glu Ile  
 1790 1795 1800

Glu Asn Leu Asn Leu Ala Gln Glu Leu His Glu Asn Leu Glu Glu  
 1805 1810 1815

Met Lys Ser Val Met Lys Glu Arg Asp Asn Leu Arg Arg Val Glu  
 1820 1825 1830

Glu Thr Leu Lys Leu Glu Arg Asp Gln Leu Lys Glu Ser Leu Gln  
 1835 1840 1845

Glu Thr Lys Ala Arg Asp Leu Glu Ile Gln Gln Glu Leu Lys Thr  
 1850 1855 1860

Ala Arg Met Leu Ser Lys Glu His Lys Glu Thr Val Asp Lys Leu  
 1865 1870 1875

Arg Glu Lys Ile Ser Glu Lys	Thr Ile Gln Ile Ser Asp Ile Gln
1880	1885 1890
Lys Asp Leu Asp Lys Ser Lys	Asp Glu Leu Gln Lys Lys Asp Arg
1895	1900 1905
Gln Asn His Gln Val Lys Pro	Glu Lys Arg Leu Leu Ser Asp Gly
1910	1915 1920
Gln Gln His Leu Met Glu Ser	Leu Arg Glu Lys Cys Ser Arg Ile
1925	1930 1935
Lys Glu Leu Leu Lys Arg Tyr	Ser Glu Met Asp Asp His Tyr Glu
1940	1945 1950
Cys Leu Asn Arg Leu Ser Leu	Asp Leu Glu Lys Glu Ile Glu Phe
1955	1960 1965
His Arg Ile Met Lys Lys Leu	Lys Tyr Val Leu Ser Tyr Val Thr
1970	1975 1980
Lys Ile Lys Glu Glu Gln His	Glu Cys Ile Asn Lys Phe Glu Met
1985	1990 1995
Asp Phe Ile Asp Glu Val Glu	Lys Gln Lys Glu Leu Leu Ile Lys
2000	2005 2010
Ile Gln His Leu Gln Gln Asp	Cys Asp Val Pro Ser Arg Glu Leu
2015	2020 2025
Arg Asp Leu Lys Leu Asn Gln	Asn Met Asp Leu His Ile Glu Glu
2030	2035 2040
Ile Leu Lys Asp Phe Ser Glu	Ser Glu Phe Pro Ser Ile Lys Thr
2045	2050 2055
Glu Phe Gln Gln Val Leu Ser	Asn Arg Lys Glu Met Thr Gln Phe
2060	2065 2070
Leu Glu Glu Trp Leu Asn Thr	Arg Phe Asp Ile Glu Lys Leu Lys
2075	2080 2085
Asn Gly Ile Gln Lys Glu Asn	Asp Arg Ile Cys Gln Val Asn Asn
2090	2095 2100

Phe	Phe	Asn	Asn	Arg	Ile	Ile	Ala	Ile	Met	Asn	Glu	Ser	Thr	Glu
2105						2110					2115			
Phe	Glu	Glu	Arg	Ser	Ala	Thr	Ile	Ser	Lys	Glu	Trp	Glu	Gln	Asp
2120						2125					2130			
Leu	Lys	Ser	Leu	Lys	Glu	Lys	Asn	Glu	Lys	Leu	Phe	Lys	Asn	Tyr
2135						2140					2145			
Gln	Thr	Leu	Lys	Thr	Ser	Leu	Ala	Ser	Gly	Ala	Gln	Val	Asn	Pro
2150						2155					2160			
Thr	Thr	Gln	Asp	Asn	Lys	Asn	Pro	His	Val	Thr	Ser	Arg	Ala	Thr
2165						2170					2175			
Gln	Leu	Thr	Thr	Glu	Lys	Ile	Arg	Glu	Leu	Glu	Asn	Ser	Leu	His
2180						2185					2190			
Glu	Ala	Lys	Glu	Ser	Ala	Met	His	Lys	Glu	Ser	Lys	Ile	Ile	Lys
2195						2200					2205			
Met	Gln	Lys	Glu	Leu	Glu	Val	Thr	Asn	Asp	Ile	Ile	Ala	Lys	Leu
2210						2215					2220			
Gln	Ala	Lys	Val	His	Glu	Ser	Asn	Lys	Cys	Leu	Glu	Lys	Thr	Lys
2225						2230					2235			
Glu	Thr	Ile	Gln	Val	Leu	Gln	Asp	Lys	Val	Ala	Leu	Gly	Ala	Lys
2240						2245					2250			
Pro	Tyr	Lys	Glu	Glu	Ile	Glu	Asp	Leu	Lys	Met	Lys	Leu	Val	Lys
2255						2260					2265			
Ile	Asp	Leu	Glu	Lys	Met	Lys	Asn	Ala	Lys	Glu	Phe	Glu	Lys	Glu
2270						2275					2280			
Ile	Ser	Ala	Thr	Lys	Ala	Thr	Val	Glu	Tyr	Gln	Lys	Glu	Val	Ile
2285						2290					2295			
Arg	Leu	Leu	Arg	Glu	Asn	Leu	Arg	Arg	Ser	Gln	Gln	Ala	Gln	Asp
2300						2305					2310			
Thr	Ser	Val	Ile	Ser	Glu	His	Thr	Asp	Pro	Gln	Pro	Ser	Asn	Lys
2315						2320					2325			



Pro Leu Thr Cys Gly Gly Gly Ser Gly Ile Val Gln Asn Thr Lys  
 2330 2335 2340

Ala Leu Ile Leu Lys Ser Glu His Ile Arg Leu Glu Lys Glu Ile  
 2345 2350 2355

Ser Lys Leu Lys Gln Gln Asn Glu Gln Leu Ile Lys Gln Lys Asn  
 2360 2365 2370

Glu Leu Leu Ser Asn Asn Gln His Leu Ser Asn Glu Val Lys Thr  
 2375 2380 2385

Trp Lys Glu Arg Thr Leu Lys Arg Glu Ala His Lys Gln Val Thr  
 2390 2395 2400

Cys Glu Asn Ser Pro Lys Ser Pro Lys Val Thr Gly Thr Ala Ser  
 2405 2410 2415

Lys Lys Lys Gln Ile Thr Pro Ser Gln Cys Lys Glu Arg Asn Leu  
 2420 2425 2430

Gln Asp Pro Val Pro Lys Glu Ser Pro Lys Ser Cys Phe Phe Asp  
 2435 2440 2445

Ser Arg Ser Lys Ser Leu Pro Ser Pro His Pro Val Arg Tyr Phe  
 2450 2455 2460

Asp Asn Ser Ser Leu Gly Leu Cys Pro Glu Val Gln Asn Ala Gly  
 2465 2470 2475

Ala Glu Ser Val Asp Ser Gln Pro Gly Pro Trp His Ala Ser Ser  
 2480 2485 2490

Gly Lys Asp Val Pro Glu Cys Lys Thr Gln  
 2495 2500

<210> 12  
 <211> 20  
 <212> DNA  
 <213> Homo sapiens

<400> 12  
 acagaaaaag gaccgacaga

<210> 13  
 <211> 20  
 <212> DNA  
 <213> Homo sapiens

<400> 13  
 agatcaagag aatgaactca 20

<210> 14  
 <211> 20  
 <212> DNA  
 <213> Homo sapiens

<400> 14  
 agatcaagag gaaagcattg 20

<210> 15  
 <211> 10  
 <212> PRT  
 <213> Homo sapiens

<400> 15  
 Glu Leu Gln Lys Lys Asp Arg Gln Asn His  
 1 5 10

<210> 16  
 <211> 10  
 <212> PRT  
 <213> Homo sapiens

<400> 16  
 Lys Lys Asp Gln Glu Asn Glu Leu Ser Ser  
 1 5 10

<210> 17  
 <211> 10  
 <212> PRT  
 <213> Homo sapiens

<400> 17  
 Lys Lys Asp Gln Glu Glu Ser Ile Glu Asp  
 1 5 10

<210> 18  
 <211> 285  
 <212> DNA  
 <213> Homo sapiens

<400> 18  
 atccaagaac ttcagaaaaa agaacttcaa ctgotttagag tgaaagaaga tgtcaatatg 60

agtcataaaa aaattaatga aatggaacag ttgaagaagc aatttgagcc aaactatcta 120  
 tgcaagtgtg agatggataa cttccagttg actaagaaac ttcatagaaag ccttgaagaa 180  
 ataagaattg tagctaaaga aagagatgag ctaaggagga taaaagaatc tctcaaaatg 240  
 gaaagggacc aattcatagc aaccttaagg gaaatgatag ctaga 285

<210> 19  
 <211> 95  
 <212> PRT  
 <213> Homo sapiens

<400> 19

Ile Gln Glu Leu Gln Lys Lys Glu Leu Gln Leu Leu Arg Val Lys Glu  
 1 5 10 15

Asp Val Asn Met Ser His Lys Lys Ile Asn Glu Met Glu Gln Leu Lys  
 20 25 30

Lys Gln Phe Glu Pro Asn Tyr Leu Cys Lys Cys Glu Met Asp Asn Phe  
 35 40 45

Gln Leu Thr Lys Lys Leu His Glu Ser Leu Glu Glu Ile Arg Ile Val  
 50 55 60

Ala Lys Glu Arg Asp Glu Leu Arg Arg Ile Lys Glu Ser Leu Lys Met  
 65 70 75 80

Glu Arg Asp Gln Phe Ile Ala Thr Leu Arg Glu Met Ile Ala Arg  
 85 90 95

<210> 20  
 <211> 28  
 <212> DNA  
 <213> Homo sapiens

<400> 20  
 caacaggaac taaaaactgc tcgtatgc 28

<210> 21  
 <211> 28  
 <212> DNA  
 <213> Homo sapiens

<400> 21  
 aggctttcca taagggtgctg ttgtccat 28

<210> 22  
 <211> 28  
 <212> DNA  
 <213> Homo sapiens  
  
 <400> 22  
 taacacggat gctggtgacc tcttcttc 28  
  
 <210> 23  
 <211> 28  
 <212> DNA  
 <213> Homo sapiens  
  
 <400> 23  
 aaaggctgat tctctcttgg catcaagg 28  
  
 <210> 24  
 <211> 28  
 <212> DNA  
 <213> Homo sapiens  
  
 <400> 24  
 atggcggagg aaggagccgt ggccgtct 28  
  
 <210> 25  
 <211> 28  
 <212> DNA  
 <213> Homo sapiens  
  
 <400> 25  
 ctactgagtt ttgcactcag gcacatcc 28